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# An Inventory of Canadian Cafeterias and the Energy Usage in this Foodservice Sector

A RESEARCH REPORT

Canada

# An Inventory of Canadian Cafeterias and the Energy Usage in this Foodservice Sector

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## ABSTRACT

Key Words:
Cafeterias/Catering/Energy Costs/Inventory/
Meal Receipts

This report compiled a separate inventory of the cafeterias in each of ten different kinds of settings: (1) schools, (2) hospitals and special care facilities, (3) military and Coast Guard facilities, (4) prisons, (5) transportation facilities, (6) department stores, (7) miscellaneous retail establishments, (8) company work places, (9) government work places, and (10) clubs. Each inventory, categorized by province, showed what proportion is operated by caterers and what proportion is not. The ten inventories were summed to show the overall size of the cafeteria business in Canada. All measurements were made using food service receipts as an indicator of size. In 1982, the value of cafeteria meal receipts was about $4.4 billion, $3.1 billion (or 70%) of it in cafeterias not operated by caterers. Although the study results probably are reasonably accurate, the unavailability of aggregate data occasionally required the use of estimating techniques whose effectiveness cannot be validated. The report also estimated energy costs in Canadian cafeterias, but did so in a provisional and tentative manner; future research on typical patterns of cafeteria energy use would permit the development of detailed, reliable energy cost estimates.

Mots clés :

Cafétérias/Traiteurs/Coûts de
l'énergie/Inventaire/Recettes

Le présent rapport donne les résultats d'un inventaire des cafétérias de chacun des dix secteurs suivants : (1) écoles; (2) hôpitaux et établissements de soins spécialisés; (3) installations militaires et installations de la Garde côtière; (4) prisons; (5) installations de transport; (6) grands magasins; (7) établissements de détail; (8) lieux de travail - secteur privé; (9) lieux de travail - fonction publique; (10) clubs. Les données rassemblées pour chaque secteur ont d'abord été catégorisées par province et indiquent quelle proportion des cafétérias dénombrées sont ou ne sont pas exploitées par des traiteurs. Elles ont ensuite été compilées pour donner une idée de l'importance globale du secteur des cafétérias au Canada. Toutes les évaluations se fondent sur les recettes perçues, lesquelles ont également servi à estimer l'importance des établissements. Ainsi, en 1982, les repas pris en cafétéria représentaient une valeur de 4,4 milliards de dollars, dont 70 p. 100 (3,1 milliards de dollars) étaient attribuables à des cafétérias qui ne sont pas exploitées par des traiteurs. Bien que les résultats de l'étude sont assez exacts, l'absence de données globales a parfois

rendu nécessaire l'utilisation de techniques estimatives dont l'efficacité ne peut être validée. Le présent rapport renferme aussi une estimation grossière du coût de l'énergie dans les cafétérias canadiennes; il faudrait toutefois étudier plus à fond les habitudes de consommation de l'énergie dans les cafétérias pour obtenir une estimation plus fiable et détaillée de ces coûts.

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This report, prepared by Canadian Resourcecon, presents the results from one of the first restaurant sector research projects initiated by the University of Manitoba on behalf of the Buildings Energy Technology Transfer (BETT) Program. Although the title of the report indicates that the primary objective of the research study was to inventory Canadian cafeterias and estimate the energy usage by this subsector, the report also draws conclusions regarding the total food service industry in Canada.

These more general conclusions are based, in part, on the results from a preliminary, unpublished study on energy conservation in Canadian restaurants. This latter study, conducted by Middleton Associates for the University of Manitoba, was used as a starting point for this cafeterias study. The Middleton study (see summary, Appendix B) inventoried restaurants and caterers while the Canadian Resourcecon work inventoried only cafeterias (whether catered or not). By integrating the results of the two research efforts, the authors of this present report have obtained a reasonably complete estimate of the total size of the food service industry in Canada. This was the primary objective of the demographic research effort initiated by BETT. In addition, some very tentative estimates of energy use and conservation potential have been developed.

Although it could be considered that an ultimate goal of the BETT Program might be to obtain an accurate estimate of the total energy demand and conservation potential in the food service industry, the unreasonably large research effort required to

obtain such an estimate is unjustified. Consequently, no further research has been initiated to measure aggregate energy consumption in the foodservice sector. BETT has shifted the emphasis of the program towards the national transfer of energy conservation technology.

Objectif - Le but de cette étude était d'inventorier toutes les cafétérias canadiennes et d'estimer la proportion d'entre elles qui ne sont pas exploitées par des traiteurs. Ces renseignements serviront en bout de ligne por estimer la demande énergétique et l'importance des économies d'énergie possibles dans les cafétérias. On a fait, à la fin de l'étude, une estimation provisoire du coût de la consommation d'énergie, mais il ne sera possible de produire des estimations plus exactes, fondées sur des statistiques plus fiables de l'utilisation de l'énergie, que lorsqu'on aura fait des recherches complémentaires sur les habitudes de consommation de l'énergie dans les cafétérias.

Méthode - Les cafétérias ont été catégorisées en fonction de leur clientèle, et l'on a estimé leur activité totale pour chacun des types de clientèle établis. Par ailleurs, étant donné la variété des renseignements recueillis, on a dû élaborer une méthode estimative différente pour chaque type de cafétéria. On a pu obtenir une estimation précise dans la plupart des cas, mais il en est quelques-uns où l'absence de données pertinentes a obligé à fonder l'estimation sur des hypothèses faibles. Toutefois, l'inventaire global donne une idée assez exacte de la répartition des cafétérias, car celles pour lesquelles on n'a pu obtenir une estimation fiable sont peu nombreuses et relativement petites.

Pour les fins de l'étude, on a classé les différents types de cafétérias selon qu'il existait ou non à leur sujet une source centralisée de données. Les cafétérias dénombrées ont donc été réparties selon les deux classes et dix types suivants :

A Cafétérias pour lesquelles existe une source centralisée de données :

1 Écoles
2 Hôpitaux et établissements de soins spécialisés
3 Installations militaires et installations de la Garde côtière
4 Prisons
5 Installations de transport
6 Grands magasins
7 Établissements de détail

B Cafétérias pour lesquelles il n'y a pas de source centralisée de données :

8 Lieux de travail - secteur privé
9 Lieux de travail - fonction publique
10 Clubs

Dans tous les cas, on a évalué l'activité des cafétérias au cours de l'année civile 1982, en se fondant sur les recettes perçues. De plus, les estimations obtenues pour les différents types de cafétérias ont toujours été compilées (1) par province et (2) selon le type d'entreprise (cafétéria exploitée ou non par des traiteurs). Cette méthode statistique normalisée a facilité l'établissement d'un sommaire des résultats.

Résultats - Il ressort de l'inventaire que, en 1982, les repas pris en cafétéria représentaient une valeur de 4,4 milliards de dollars, dont 70 p. 100 (3,1 milliards de dollars) étaient attribuables à des cafétérias qui ne sont pas exploitées par des traiteurs. Or une première étude menée par *Middleton Associates*, dont les résultats n'ont pas été publiés (voir Appendice B), chiffrait les recettes globales du secteur de la restauration à 7,7 milliards de dollars et même à 8,5 milliards de dollars lorsqu'on tient compte de l'inflation en 1981-1982, notamment dans le secteur de la restauration hôtelière, et qu'on exclut les traiteurs pour éviter le dédoublement des données. (L'étude menée par *Middleton Associates* portait seulement sur les cafétérias exploitées par des traiteurs.) Les recherches dont le présent rapport fait état laissent entendre que la valeur des repas pris en cafétéria, soit 4,4 milliards de dollars, porte à 12,9 milliards de dollars le chiffre d'affaires total de l'industrie de la restauration.

Il ressort également des données compilées que l'industrie canadienne de la restauration semble dépenser quelque 490 millions de dollars par année au titre de l'énergie et que l'établissement de programmes d'économies de l'énergie pourrait permettre de diminuer ces frais de 30 p. 100 à 40 p. 100, c.-à-d. de 145 millions à 195 millions de dollars.

## 1.1 Study Objective

The purpose of this study was to extend some preliminary statistical work on energy conservation in restaurants, done by Middleton Associates for the University of Manitoba.(1) That work (unpublished but summarized in Appendix B of this report) estimated the number of restaurant and food service establishments in Canada and began to evaluate the approximate amount of energy consumed by them. To a large extent, the Middleton work relied on information available from the ongoing Statistics Canada survey of restaurants, caterers, and taverns,(2) a survey that was not designed to include all types of food service operations in the country.

In the end, with the exception of restaurant operations in accommodation facilities, the Middleton study was unable to inventory those types of food service establishments missed by the Statistics Canada survey. Overlooked establishments fall into two categories:

(1) food service operations that are non-profit in nature, and

(2) food service operations that, although profit motivated, are part of some larger enterprise which specializes in something other than feeding people.

The secondary objective of this study was to inventory all cafeteria operations in Canada. The main objective was to identify those food service

operations not included in the Middleton study (almost all of which were cafeterias). For the sake of simplicity, it was assumed that any food service operations overlooked by Middleton Associates were cafeterias and could therefore be treated as a subset of the entire universe of Canadian cafeterias. This assumption introduced negligible quantitative error.

In general, only those cafeterias operated by catering firms were accounted for in the Middleton study. Consequently, in pursuing its primary and secondary objectives, this research constantly differentiated between catered and uncatered cafeterias.

Although the main objective of this study was to inventory cafeterias, by type and by province, across Canada, there was also a need to ascertain typical patterns of energy consumption in self-service eating places. No effort was made to dedicate a separate part of this research to this question, but care was taken to watch for sources of information that bear on it.

## 1.2 The Procedure

The first task was to identify the various types of cafeterias for which information must be gathered. This process tended to cause an underenumeration of cafeterias since some types probably were not selected (and thus escaped detection).

The different types of cafeterias which were thought of for inclusion in this study fall into one of two categories: those for which there are centralized sources of information and those which apparently have not previously been inventoried. Because in one case aggregate data are available whereas in the other they are not, the two categories required different research methods.

For all those types of cafeterias for which centralized sources of information are available, the main strategy was to acquire available statistics, upgrade their reliability and accuracy, and convert them to comparable units. Often it was necessary to telephone knowledgeable people and individual management units in order to verify, modify, or complete the available statistical base, but generally there was no need to conduct a systematic telephone survey in order to inductively generate a base of information.

For those types of cafeterias lacking centralized sources of information, however, the research method had to consist of a slow and tedious telephone survey. The hope was that a clear

picture of a small part of a cafeteria sector would permit an estimate of its overall size. Given the available time and resources, this sort of establishment-by-establishment survey could not be expected to yield accurate or precise results. Nevertheless, there did not seem to be any feasible alternative to it and if an estimate is needed a shaky one based on inadequate data is better than none at all.

The following types of cafeterias were inventoried:

A. Those having centralized data sources:
   1. Schools
   2. Hospitals and special care facilities
   3. Military and Coast Guard facilities
   4. Prisons
   5. Transportation facilities
   6. Department stores
   7. Miscellaneous retail establishments

B. Those lacking centralized data sources:
   1. Company work places
   2. Government work places
   3. Clubs

Three methods were used to obtain information regarding energy consumption in these various types of cafeterias. First, efforts were made to identify any existing studies which have dealt with this question. Second, whenever individuals or establishments were contacted for information about cafeterias they were asked whether they know of any available data on energy use and whether they are

aware of any energy conservation programs. Third, a number of major catering firms were contacted specifically to find out whether they know of any detailed energy audits that have been done in self-service eating establishments.

## 2.1 Schools

### 2.1.1 Types of Schools

Available data permitted classification of schools into three categories: (1) elementary and secondary schools, (2) colleges, and (3) universities. Cafeterias are to be found in each of these school categories, but their incidence and characteristics vary from one category to the next.

### 2.1.2 Primary and Secondary Schools

Information regarding cafeteria operations in primary and secondary schools was solicited from school boards in the following cities across Canada: St. John's (Newfoundland); Saint John (New Brunswick); Charlottetown (Prince Edward Island); Montreal (Quebec); Toronto, Ottawa and Hamilton (Ontario); Winnipeg (Manitoba); Saskatoon (Saskatchewan); Calgary and Edmonton (Alberta); Vancouver and Victoria (British Columbia). In addition, provincial departments of education were contacted in Quebec, Ontario, Saskatchewan, Alberta, and British Columbia.

Telephone calls to school boards and provincial education departments in these localities revealed that certain generalizations can be made about their cafeteria operations. First, in elementary schools cafeterias are exceedingly rare. Second, although many intermediate and secondary schools have cafeterias, a significant number do not. Third,

most schools with cafeterias contract catering firms to operate them, but (especially in cities) a very large number run their own.

There appear to be two circumstances in which schools operate their own cafeterias. First, whenever a school has a well-developed technical training program it probably offers a cooking and food preparation option, in which case the cafeteria is likely to be run by the school as a training program for students. Secondary schools with a technical orientation are not uncommon in urban centres. They do not appear to be limited to a specific region, or defined set of provinces, in Canada. As a very rough estimate, one quarter of Canada's secondary level students attend schools of this type.

The second circumstance in which schools run their own cafeterias arises when a school board, usually for nutritional reasons, has decided that the cafeterias in the schools under its jurisdiction will be operated by the schools themselves under guidelines specified by the board. Being a local decision, this arrangement appears sporadically in the larger cities across the country (it seems unlikely that it would occur in the small towns and rural areas). Of the school boards contacted, only Calgary and Toronto systematically operated all their own cafeterias. Given the vague and incomplete nature of available information, it is very difficult to estimate either the prevalence or the geographic distribution of this kind of

arrangement. The best that can be done is (1) to recognize that the random, occasional school board decision to operate its own food services will tend to inflate the proportion of all schools having uncatered cafeterias, and (2) to assume, lacking evidence to the contrary, that this inflation will distribute evenly throughout the country.

Cafeterias in intermediate and secondary schools serve lunches only and usually only to a part of the entire student body. Thus any statistic designed to measure quantity of food service per student would have quite low values compared to colleges and universities.

### 2.1.3 Colleges

Colleges in this case refers to two-year institutions that provide both academic and technical training to high school graduates. Because most colleges have chef training schools and food service programs, their cafeterias usually are not catered. However, since the students at colleges typically live at home rather than on campus, the cafeteria operations concentrate on lunch service, a fact which, as in secondary schools, limits the scale of food service operations. One can expect that food service per student will be higher than in high schools because nearly all colleges have cafeterias whereas many high schools do not and because bag lunches seem to be less common at the post-secondary level.

### 2.1.4 Universities

Since many students attending universities are boarders, campus cafeterias typically provide meals throughout the day. This of course means that their food preparation per student is much higher than in colleges or secondary schools. On the other hand, universities often rely on caterers to operate their food services and so the amount of university cafeteria activity undetected by the Middleton study (Appendix B) would be substantially less than the total.

### 2.1.5 Estimating Cafeteria Services in Schools

The Foodservice and Hospitality Magazine Fact File(3) contains an estimate of total food service receipts in 1981 for elementary and secondary schools, colleges, and universities. It also provides an evaluation of the degree to which catering has penetrated the school cafeteria market. Its figures are for Canada as a whole and are not broken down by province.

Statistics Canada(4) provides enrolment figures for 1981-82 and 1982-83, for each type of school, and for each province.

The Fact File figures for 1981 food service receipts in the three types of schools were adjusted to 1982 levels by assuming (1) that receipts per student would remain constant and that changes in receipts would simply reflect changes in

total enrolment, (2) that the market share for catered services would remain unchanged between 1981 and 1982, (3) that catering would be proportionately the same in all three types of schools, (4) that inflation would have caused a 10.8% increase in food service receipts between 1981 and 1982 (the national consumer price index increased by 10.8% during this period), and (5) that for each separate type of school food service receipts would allocate among the provinces at a constant amount per student.

With one exception, these assumptions did not seem to have the potential to introduce signficant error into final estimates of total food service receipts cross tabulated by province and by catered versus uncatered status. The exception was the third one, the one which anticipated a constant level of market penetration by caterers across all three types of schools. Previous discussion already has made it clear that the prevalence of catering is likely to be greatest in universities and least in colleges. However, since the Fact File estimate of catering was a considered judgement for all schools obtained by soliciting the opinions of knowledgeable education administrators, it was neither logically appropriate nor computationally simple to disaggregate it so that catering market penetration varied from one type of school to the next. It could have been done, but the fact that the proportionate split of students among the three types of schools does not vary considerably from

province to province diminishes the likelihood that the exercise would have been fruitful.

### 2.1.6 Meal Receipts in Schools

Table 2.1 summarizes food service receipts in schools by province across Canada. It is evident that the magnitude of cafeteria operations in Canadian schools is sufficiently large to merit special consideration by energy conservation programs. For the country as a whole, about $250 million worth of food preparation is uncatered.

Table 2.1 Schools: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 5 685 | 6 381 | 12 066 |
| Prince Edward Island | 1 065 | 1 194 | 2 259 |
| Nova Scotia | 9 998 | 11 220 | 21 218 |
| New Brunswick | 7 116 | 7 986 | 15 102 |
| Quebec | 64 394 | 72 268 | 136 662 |
| Ontario | 98 405 | 110 437 | 208 842 |
| Manitoba | 10 400 | 11 671 | 22 071 |
| Saskatchewan | 9 709 | 10 897 | 20 606 |
| Alberta | 21 913 | 24 592 | 46 505 |
| British Columbia | 23 181 | 26 015 | 49 196 |
| Yukon & NWT | 416 | 467 | 883 |
| Total: Canada | 252 282 | 283 128 | 535 410 |

## 2.2 Hospitals and Special Care Facilities

### 2.2.1 General Observations

As of April 1, 1982, there were more than 170 000 registered hospital beds in Canada. This is a most substantial number and suggests that food service operations on a relatively large scale were required to feed the people who occupy them. Furthermore, in addition to hospitals there were many different kinds of special care facilities that house people and provide them with food. In addition to statistical information on hospitals, Statistics Canada, List of Canadian Hospitals and Special Care Facilities, 1982(5) contains a tabulation of registered beds in special care facilities. Facilities designed to look after the following different kinds of people are included in the publication's statistics: (1) the aged, (2) the physically handicapped, (3) the retarded, (4) the mentally handicapped, (5) the emotionally disturbed, (6) those with alcohol or drug addiction problems, (7) delinquents, (8) transients, and (9) others (including unwed mothers). When the registered beds for all these different types of special care facilities were summed it became evident that their requirements for cafeteria arrangements were even greater than the requirements for hospitals. On April 1, 1982, there were over 230 000 registered beds in special care facilities. Altogether, therefore, hospitals and special care facilities must have been able to feed a population of over 400 000. They must have been

able to do so not just once, but three times per day, 365 days per year. In other words, the amount of cafeteria food preparation being done in institutions of these types probably was very great. Of course, the occupancy rate in any hospital or special care facility is something less than 100%, and so without additional information a simple bed count is not a firm indication of the amount of cafeteria food preparation that took place in 1982. Since a certain unknown proportion of the 400 000 hospital and special care facility beds would have been empty during the year, it is logical to assume that there would have been significantly less than 400 000 person-years of meals prepared for patients and residents.

On the other hand, it must be remembered that meals taken by staff and visitors tend to compensate for the fact that bed occupancies are inevitably less than 100%. In fact, limited evidence from hospital food service statistics suggests that the feeding of staff and visitors can result in a situation where, during a year, more than one person-year of meals is served for each registered bed.

Originally obtaining its data from the Institutional Statistics Division of Statistics Canada, the Fact File[6] has compiled tables which enumerate (1) numbers of registered beds in hospitals and special care facilities, (2) numbers of meal-days of food prepared by hospitals, (3) approximate percentage of hospital meal-days prepared by caterers, (4) cost of food prepared by

hospitals, and (5) cost of food prepared by special care facilities. Careful manipulation of these various kinds of data made it possible to estimate the magnitude of cafeteria operations in hospitals and special care facilities during 1982. One major difficulty, however, was that available data employ such units of measurement as meal-days and food costs. These units of measurement are appropriate indicators of the scale of cafeteria operations but most data sources providing information on level of food service activity measure it using a totally different unit: receipts from sale of meals. This is the measure used in the Middleton study; this is the measure most commonly encountered when compiling information about various types of cafeterias. In this study, every effort was made to express the scale of all cafeteria operations in this common unit of measurement. To have done otherwise would have made it impossible to sum figures for different cafeteria types; no overall estimate of cafeteria operations in Canada would have been possible.

Since available information on cafeteria operations in schools was expressed in dollars of meal receipts, problems with units of measurement did not arise. With hospitals and special care facilities, however, they did. In subsequent sections of this study, problems reappear, but never with the same level of quantitative import. Section 2.2.2 explains how conversion between meal-days , cost of food, and meal receipts was managed for hospitals and special care facilities. The

procedures and assumptions defined therein were used, with appropriate modification, whenever similar problems arose for other cafeteria types.

### 2.2.2 Estimating Cafeteria Services

Information in the Fact File (p 55) indicates that as of April, 1979, the average hospital in Canada had 141.5 beds while the average special care facility had 45.1 beds.

Considering hospitals first, the Fact File (p 59) notes that in April, 1980, 952 hospitals having 112 404 beds responded to a Statistics Canada survey that included questions about their food service operations. Simple division indicated that the average responding hospital had 118.1 beds. Of the 952 hospitals that responded to the survey, 773 reported their food costs. If we assume that those 773 hospitals were a random sample then their average size also was 118.1 beds. Furthermore, the average size (118.1 beds) times the total number (773 hospitals) gave an estimate of the total number of beds in those hospitals responding to the survey question about food costs: 91 268. Since the survey itself revealed that those 773 hospitals spent $123 283 200 for food during the year, we could calculate the average food cost per bed: $123 283 200 ÷ 91 268 = $1 350.78. This figure, however, is in 1980 dollars. In order to estimate the 1982 value of those dollars it was assumed that they were subject to an inflation rate equivalent

to the 1980-1982 increase in the consumer price index: \$1 350.78 x (262.5 ÷ 210.6) = \$1 683.66.

People in the food service industry generally believe that food costs are 35-40% of the total retail value of served meals. This estimate has been suggested by Michael Haywood and Judith Bauer, compilers of the most recent Fact File, as well as by various other people intimate with the food service industry. Furthermore, the Department of National Defense uses a multiplication factor of 2.8 to convert food costs to equivalent retail value of prepared rations (in military parlance, a ration is almost the same as a meal-day). Use of this 2.8 factor means that the military thinks food costs account for 35.7% of the total retail value of their prepared food. Military food preparation processes resemble quite closely those in a typical self-service food operation, and so the 2.8 factor should be appropriate for use when considering hospital and special care facility cafeterias. When we applied the 2.8 factor to hospital food costs we came to the conclusion that the retail value per bed of food prepared in hospitals was \$4 714.26.

The Fact File (p 56) also contains 1978-1979 data on meal days, hospitals, and beds which could be integrated with our newly derived estimate of retail value per bed of prepared food. Recalling the overall average of 141.5 beds per hospital and multiplying that by the 1 142 hospitals that reported meal-days served, we estimated the total

number of beds in those hospitals reporting meals as 161 593. Since those 1 142 hospitals served 71 810 500 meal days during 1978-1979 (Fact File, p. 56), simple division permitted the conclusion that hospitals served approximately 444.4 meal-days per bed.

Assuming that hospital food service per bed remained constant between 1979 and 1982, we were able to estimate the commercial value of a hospital meal day: \$4 714.26 ÷ 444.4 = \$10.61. For the sake of clarification, it should be mentioned that a meal-day includes all feeding by a person in a single day.

Turning now to special care facilities, p 60 of the Fact File reports that, in 1979-1980, 1 654 special care facilities had 94 303 beds (indicating an average of 57 beds per facility). Of these 1 654 facilities, only 417 reported their food costs for that year. If those reporting were a random selection they, too, would have had an average of 57 beds per facility and in total they would have had 23 769 beds. Since their reported raw food costs were \$32 083 700, we could estimate raw food costs per bed: \$1 349.31. When this figure was converted to 1982 dollars it became \$1 682.46 and when it was multiplied by 2.8 to estimate retail value per bed of prepared food it became \$4 710.88. It is remarkable that, after all the data manipulations and all the simplifying assumptions, the total retail value per bed of prepared food in special care facilities should be

so close to the equivalent value for hospitals: $4 710.88 versus $4 714.26.

This description of estimating procedures is intended to justify the following two assumptions regarding food service in hospitals and special care facilities:

(1) The commercial value of cafeteria food output per bed per year (in 1982 dollars) = $4 700.00

(2) The commercial value of a meal-day = $10.60

With these assumptions in hand, it was possible to turn to the task of making complete estimates for 1982.

Table 2.2 summarizes the numbers of beds in hospitals and special care facilities during 1982. It also shows the calculated commercial value of cafeteria food output and the estimated percentage of all food preparation done by caterers. Its figures were used to compile the final, finished table of estimated food service receipts in hospitals and special care facilities.

Table 2.2 Hospitals and Special Care Facilities: Number of Beds, Value of Food, and Prevalence of Catering in 1982

| | Beds | | | Commercial Value of Cafeteria Meals ($10^3$ of $1982) ** | Percentage of Meal Days Purchased from Caterers*** |
|---|---|---|---|---|---|
| | Hospitals* | Special Care Facilities* | Total | | |
| Newfoundland | 3 643 | 3 880 | 7 523 | 35 358 | 53.4 |
| Prince Edward Is. | 740 | 1 604 | 2 344 | 11 017 | 1.3 |
| Nova Scotia | 6 088 | 8 586 | 14 674 | 68 968 | 17.8 |
| New Brunswick | 4 411 | 8 109 | 12 520 | 58 844 | 4.9 |
| Quebec | 54 496 | 41 394 | 95 890 | 450 683 | 1.1 |
| Ontario | 49 486 | 92 054 | 141 540 | 665 238 | 7.0 |
| Manitoba | 7 197 | 13 076 | 20 273 | 95 283 | 0.1 |
| Saskatchewan | 7 597 | 10 983 | 18 580 | 87 326 | 0.3 |
| Alberta | 16 245 | 23 988 | 40 233 | 189 095 | 10.8 |
| British Columbia | 22 132 | 27 571 | 49 703 | 233 604 | 0.5 |
| Yukon & NWT | 564 | 384 | 948 | 4 456 | 18.0 |
| Canada | 172 599 | 231 629 | 404 228 | 1 899 872 | |

*Source: Statistics Canada (83-201), List of Canadian Hospitals and Special Care Facilities, 1982 (Ottawa: Statistics Canada, 1983), pp 12-13, 72-77.

**Assumes a commercial value of $4,700 per bed per year.

***Source: Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magaizine, 1982), p 57. These percentage figures are indicative of the situation in hospitals during the period 1977-1980. Based on conversations with Judith Bauer and Michael Haywood, it was assumed (1) that the percentage values have not changed significantly since 1977-1980, and (2) that the percentage values for hospitals can also be used for special care facilities.

### 2.2.3 Meal Receipts in Hospitals and Special Care Facilities

As Table 2.3 shows, food service activity in hospitals and special care facilities is very substantial indeed. Almost $1.9 billion worth of meals is prepared annually in these types of institutions. This indicates a scale of operations approximately one fifth the size of the entire reported commercial food service business in the country. Of all the various types of cafeterias considered by this study, this one is by far the most significant.

Table 2.3 Hospitals and Special Care Facilities: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 16 477 | 18 881 | 35 358 |
| Prince Edward Island | 10 874 | 143 | 11 017 |
| Nova Scotia | 56 692 | 12 276 | 68 968 |
| New Brunswick | 55 961 | 2 883 | 58 844 |
| Quebec | 445 725 | 4 958 | 450 683 |
| Ontario | 618 671 | 46 567 | 665 238 |
| Manitoba | 95 188 | 95 | 95 283 |
| Saskatchewan | 87 064 | 262 | 87 326 |
| Alberta | 168 673 | 20 422 | 189 095 |
| British Columbia | 232 436 | 1 168 | 233 604 |
| Yukon & NWT | 3 654 | 802 | 4 456 |
| Total: Canada | 1 791 415 | 108 457 | 1 899 872 |

It is interesting to note the lack of market penetration by caterers in this type of cafeteria. Except in Newfoundland where over half of all food

services are catered, most hospitals and special care facilities operate their own cafeterias.

## 2.3 Military and Coast Guard Facilities

### 2.3.1. Feeding Armed Service Personnel

The Information Services Branch of the Department of National Defense has indicated that on 31 December, 1982, there were 75 430 people enlisted in the armed services. Table 2.4 shows how they were distributed among the provinces.

Table 2.4 Distribution of Canadian Military Personnel, 31 December 1982

| | Approximate Number of Men & Women* | Percentage Distribution |
|---|---|---|
| Newfoundland | 870 | 1.1 |
| Prince Edward Is. | 915 | 1.2 |
| Nova Scotia | 10 400 | 13.5 |
| New Brunswick | 4 530 | 5.9 |
| Quebec | 10 815 | 14.1 |
| Ontario | 23 910 | 31.1 |
| Manitoba | 4 290 | 5.6 |
| Saskatchewan | 4 560 | 5.9 |
| Alberta | 7 675 | 10.0 |
| British Columbia | 8 645 | 11.3 |
| Yukon & NWT | 240 | 0.3 |

*The Department of National Defense figures for individual provinces are slightly inconsistent with the total figure for Canada (they sum to 76 850 instead of 75 430). However, the calculated percentage figures in the right column probably are sufficiently accurate for analytical purposes.

In some instances, military personnel are paid a food allowance, but in others they receive what is referred to as a ration entitlement. A ration is simply a meal-day minus snacks; a ration

entitlement is a permit to eat a ration at a military mess without having to pay. Although military messes may serve meals to people not entitled to rations, there also are people who do not always take advantage of their entitlement. On balance, the ration entitlement assigned to any one cafeteria usually is a good indicator of the total number of meal-days prepared there.

In addition to entitled rations, military messes occasionally prepare meals and snacks for special dinners, parties, and social events. Food prepared under these circumstances is referred to as non-public feeding. The Department of National Defense requires that all costs associated with non-public feeding be charged to the people involved.

Finally, the military cafeterias occasionally must prepare food for personnel who are travelling by air. This in-flight feeding amounts to a small portion of all military food service activity.

The military also keeps records on field rations, but since these meals usually are prepared in the bush using very few energy-consuming utensils they have not been included in this survey.

The information in Table 2.5 was provided by Major Nora Bennett on behalf of Lieutenant-Colonel R. Grenier, Director, Food Services, Department of National Defense. The adjustments to include a profit margin for non-public feeding expenses and inflation for in-flight feeding were made to insure

that all final figures refer to retail value of meals prepared during the period October 1, 1981 to September 30, 1982.

Table 2.5 Department of National Defence Food Service Operations

| | No. of Rations | Food Cost per Ration | Total Food Cost |
|---|---|---|---|
| Ration Entitlement | | | |
| Oct/81-Mar/82 | 5 144 559 | $3.71 | $ 18 975 013.89 |
| Apr/82-Sept/82 | 5 699 936 | $3.94 | $ 22 457 761.84 |
| Total | | | $ 41 432 775.73 |
| Retail value of rations ($41 432 775.73 x 2.8) | | | $ 116 011 772.00 |
| Non-Public Feeding | | | |
| Approximate Cost (1982) | | | $ 8 504 400.00 |
| 15% Profit Margin | | | $ 1 275 660.00 |
| Retail value of non-public feeding | | | $ 9 780 060.00 |
| In-Flight Feeding | | | |
| Food Cost (April/1982-March/82) | | | $ 1 038 900.00 |
| Retail Value ($1 038 900 x 2.84) | | | $ 2 950 476.00 |
| Six months inflation ($2 950 476 x 1.054) | | | $ 3 109 802.00 |
| Retail value of in-flight feeding | | | $ 3 109 802.00 |
| Total Retail Value of DND Food Service Operations: October/81-September/82 | | | $ 128 901 634.00 |

There is a private catering firm called CANEX (Canadian Forces Exchange System) that operates a chain of 140 food service outlets on military bases. CANEX outlets serve military personnel almost exclusively. Since CANEX is profit oriented it was appropriate to assume that the Statistics Canada survey of caterers includes it in the universe from which their sample is drawn, and

indeed staff at both Statistics Canada and CANEX assert that such is the case. Nevertheless, it should be noted that Steven Isherwood, General Manger of Foodservice and Hospitality Magazine, feels there is some possibility that CANEX is not being included. Lacking evidence to suggest otherwise, this study assumed that CANEX operations are included in the estimated receipts for restaurants and caterers that Statistics Canada publishes every month.

Although the vast majority of all CANEX outlets are located in Canada, there are a few in Europe where Canadian forces are stationed. When compiling the Fact File, Michael Haywood and Judith Bauer talked with personnel at CANEX and received a rough estimate of total receipts in Canada during the 1981-1982 fiscal year: $17.5 million.

For both the Department of National Defense and CANEX it was assumed that cafeteria operations are distributed around the country in the same proportionate manner as military personnel (see Table 2.4). Table 2.6 summarizes the estimated 1982 food service receipts in the DND messes and the CANEX outlets.

### 2.3.2 Feeding Coast Guard Personnel

The Canadian Coast Guard operates a fleet of about 85 ships scattered throughout the marine and lacustrine areas of Canada; on many of them, cafeteria style meals are served to the crews. In

addition, there is a Coast Guard College in Sydney, Nova Scotia that operates its own food service.

Table 2.6 Armed Service Personnel: Estimated Food Service Receipts, 1982

| | Thousand of $1982 | |
|---|---|---|
| | Armed Service Messes | CANEX |
| Newfoundland | 1 418 | 193 |
| Prince Edward Island | 1 547 | 210 |
| Nova Scotia | 17 402 | 2 363 |
| New Brunswick | 7 605 | 1 032 |
| Quebc | 18 175 | 2 467 |
| Ontario | 40 088 | 5 443 |
| Manitoba | 7 219 | 979 |
| Saskatchewan | 7 605 | 1 033 |
| Alberta | 12 890 | 1 750 |
| British Columbia | 14 566 | 1 977 |
| Yukon & NWT | 387 | 53 |
| Total: Canada | 128 902 | 17 500 |

Table 2.7 tabulates ship personnel, meals served, food costs, and estimated retail value of meals. The Coast Guard headquarters in Ottawa provided this information. Although the figures suggest that no Coast Guard activities occur in the Prairie Provinces, there is in fact one small contingent on Lake Winnipeg in Manitoba. The numbers are miniscule, however, and food service operations there are non-existent.

Table 2.7 Food Service on Coast Guard Ships: 1981-82 Fiscal Year

| | Personnel | Meals Served | Food Costs ($1982) | Retail Value of Prepared Meals ($1982)* |
|---|---|---|---|---|
| Newfoundland | 244 | 276 349 | 737 718 | 2 065 610 |
| Prince Edward Island | 80 | 64 118 | 114 426 | 320 393 |
| Nova Scotia | 456 | 426 681 | 832 460 | 2 330 888 |
| New Brunswick | 97 | 86 661 | 161 285 | 451 598 |
| Quebec | 463 | 373 583 | 693 072 | 1 940 602 |
| Ontario | 206 | 167 937 | 357 286 | 1 000 401 |
| British Columbia | 135 | 114 150 | 242 862 | 680 014 |
| Yukon & NWT | 51 | 23 306 | 128 661 | 360 251 |
| Total: Canada | 1 732 | 1 532 785 | 3 267 770 | 9 149 756 |

*Estimated by assuming that food costs x 2.8 equal retail value of prepared meals.

Analysis of the figures in Table 2.7 suggests that the average retail value of a meal is disturbingly high: $5.97 for Canada as a whole. Furthermore, the figure varies widely from province to province, reaching a low of $3.99 in Quebec and a high of $15.46 in the Yukon and Northwest Territories. It is hard to find any reason for thinking that Coast Guard food costs should be a larger percentage of meal values than is the case for other types of cafeteria operations, and so there seems to be no justification for using a conversion factor smaller than 2.8. However, since the Coast Guard meal value estimates are so high, it is appropriate to view their food service figures with some degree of scepticism.

In addition to shipboard meals, the Coast Guard operates its own food service at the College in Sydney, Nova Scotia. Mr. Romeo, head of cafeteria services there estimates that:

(1) Between September 1 and May 31, the cafeteria feeds 210-215 persons per day (and also provides lunches for about a dozen staff);

(2) Between June 1 and August 31, the cafeteria feeds about 100 persons per day;

(3) Preparation of special buffets and dinners is occasionally required, but represents only a very small part of the total cafeteria output.

Based on these observations, the following estimates were made:

| | | | |
|---|---|---|---|
| 100 students x 92 days (June-Aug.) | = | 9 200 | meal-days |
| 200 students x 273 days (Sept.-May) | = | 54 600 | meal-days |
| | | 63 800 | meal-days |
| Plus 5% for staff, buffets, & dinners | | 3 190 | meal-days |
| | | 66 990 | meal-days |

Assuming that the commercial value of a meal-day is $10.60 (Section 2.2.2), the equivalent retail value of all meals prepared by the Coast Guard College cafeteria during a year is $710 000. Therefore, when estimates of shipboard food services and Coast Guard College food services are added together, the totals are as shown in Table 2.8.

Table 2.8 Coast Guard Personnel: Estimated Food Service Receipts, 1982

| | Retail Value of Prepared Meals ($10^3$ of $1982) |
|---|---|
| Newfoundland | 2 066 |
| Prince Edward Island | 320 |
| Nova Scotia | 3 041 |
| New Brunswick | 452 |
| Quebec | 1 941 |
| Ontario | 1 000 |
| British Columbia | 680 |
| Yukon & NWT | 360 |
| Canada | 9 860 |

## 2.3.3 Meal Receipts in Armed Service and Coast Guard Facilities

Summary Table 2.9 incorporates the assumption that the equivalent value of meal receipts in military and Coast Guard cafeterias varies in accordance with the distribution of personnel. As a result, compared to the distribution of the total national population, cafeteria activity is relatively high in Nova Scotia and low in Quebec.

The overall magnitude of military and Coast Guard cafeteria operations is rather modest. Slightly less than $140 million worth of meals is prepared each year. The figures presented in Table 2.9 are for 1982, but discussions with knowledgeable people in both the Department of National Defense and the Coast Guard division of Transport Canada indicate that the values would vary little from one year to the next.

Table 2.9 Armed Service and Coast Guard Facilities: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 3 484 | 193 | 3 677 |
| Prince Edward Island | 1 867 | 210 | 2 077 |
| Nova Scotia | 20 443 | 2 363 | 22 806 |
| New Brunswick | 8 056 | 1 032 | 9 089 |
| Quebec | 10 116 | 2 467 | 22 583 |
| Ontario | 41 088 | 5 443 | 46 531 |
| Manitoba | 7 219 | 979 | 8 198 |
| Saskatchewan | 7 605 | 1 033 | 8 638 |
| Alberta | 12 890 | 1 750 | 14 640 |
| British Columbia | 15 246 | 1 977 | 17 223 |
| Yukon & NWT | 747 | 53 | 800 |
| Total: Canada | 138 762 | 17 500 | 156 262 |

*The only catered services are those provided by CANEX

## 2.4 Prisons

### 2.4.1 Estimating Cafeteria Services

It was not possible to obtain any statistics regarding food services in correctional facilities. Conversations with personnel in the Canadian Centre for Justice Statistics at Statistics Canada confirmed that aggregate numbers for food costs, meals served, or cafeteria operating expenses are unavailable. It was learned, however, that (1) catering is non-existent in prisons, that (2) inmates generally eat all their meals in prison, and that (3) staff frequently do take meals at the prison cafeteria.

A recent publication by the Canadian Centre for Justice Statistics[7] contains a tabulation of the average number of inmates and the total number of staff in Canadian prisons during the 1981-82 fiscal year. By integrating this information with data on hospital cafeterias and military messes, it was possible to make reasonable estimates of the equivalent retail value of meals served in prisons.

It was assumed that the daily food cost for one inmate was $3.75. This is close to the known value for a military ration ($3.71 to $3.94) and the estimated value for a hospital meal day ($10.60 ÷ 2.8 = $3.79). It was also assumed that the equivalent retail value of meals equalled food costs times 2.8. Given these assumptions, the estimated retail value of all meals prepared for

one inmate in 1982 was calculated to be $3 832.50. About 18 100 person-years of staff (85% of 21 300) were required to operate the prisons, and many of the staff members ate meals in the prison cafeterias during their work shifts. Assuming that staff ate one-third of their meals in prison cafeterias, there would be an additional 6 000 person-years of demand for food services. Since this is about 25% of the average number of inmates, the value of meals prepared for inmates was multiplied by 1.25 to obtain an estimated value of meals prepared for inmates and staff. The estimated value per inmate of prepared food, therefore, was $4 790.63 in 1982. The results of these calculations are shown in Table 2.10.

Table 2.10 Estimating the Equivalent Retail Value of Meals Prepared in Prisons During 1982

| | Average No. of Inmates* | Retail Value of Meals Prepared for Inmates ($10^3$ of $1982) | Retail Value of Meals Prepared for Inmates and Staff |
|---|---|---|---|
| Newfoundland | 285 | 1 092 | 1 365 |
| Prince Edward Island | 91 | 349 | 436 |
| Nova Scotia | 863 | 3 307 | 4 134 |
| New Brunswick | 913 | 3 499 | 4 374 |
| Quebec | 5 888 | 22 566 | 28 207 |
| Ontario | 7 744 | 29 679 | 37 099 |
| Manitoba | 1 219 | 4 672 | 5 840 |
| Saskatchewan | 1 392 | 5 335 | 6 669 |
| Alberta | 2 969 | 11 379 | 14 223 |
| British Columbia | 2 813 | 10 781 | 13 476 |
| Yukon & NWT | 223 | 855 | 1 068 |
| Total: Canada | 24 400 | 93 514 | 116 891 |

*Source: Canadian Centre for Justice Statistics, Statistics Canada (85-211), Adult Correctional Services in Canada, 1981-82 (Ottawa: Statistics Canada, 1983), pp 59, 88. The figures are for the fiscal year April 1, 1981 - March 31, 1982. Over the preceding three years growth was slow (about 3% per year), and so it was assumed that these figures are correct for the 1982 calendar year.

## 2.4.2 Meal Receipts in Prisons

Table 2.11 shows the estimated equivalent retail value of food service in prisons. The figures are the same as those in column three of Table 2.10 and are presented again only to insure that the summary table for this type of cafeteria is the same in format as for all the others.

Table 2.11 Prisons: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered* | Total |
| Newfoundland | 1 365 | - | 1 365 |
| Prince Edward Island | 436 | - | 436 |
| Nova Scotia | 4 134 | - | 4 134 |
| New Brunswick | 4 374 | - | 4 374 |
| Quebec | 28 207 | - | 28 207 |
| Ontario | 37 099 | - | 37 099 |
| Manitoba | 5 840 | - | 5 840 |
| Saskatchewan | 6 669 | - | 6 669 |
| Alberta | 14 223 | - | 14 223 |
| British Columbia | 13 476 | - | 13 476 |
| Yukon & NWT | 1 068 | - | 1 068 |
| Total: Canada | 116 891 | - | 116 891 |

*There is no catering in prisons. This column of zero values is included in order to conform to the standard format adopted for all summary tables.

## 2.5 Transportation Facilities

### 2.5.1 Statistics, Inflation, and Liquor

The most readily available statistics regarding food service in the transportation sector are contained in the Fact File[8]. It indicates that in 1980 the value of prepared meals was (1) $109 375 000 for airlines, (2) $22 284 000 for trains, and (3) $40 000 000 for boats (especially ferries). The figures for planes and trains originally came from Statistics Canada reports on those respective industries; the figure for boats is a judgement based on conversations with personnel connected with the B.C. Ferry Corporation, Canadian National and Canadian Pacific.

For our purposes, these figures (aside from being potentially inaccurate) have two big drawbacks. First, because they are two years out of date (compared to 1982), they do not reflect the current level of business and they do not recognize the substantial inflation that has occurred. Second, they include liquor sales.

These problems were dealt with by assuming that the level of business has remained unchanged, by estimating total inflation at 24.6% (the amount by which the consumer price index rose during the period 1980-1982), and by valuing liquor sales at 15% of total food service (liquor's approximate share of total receipts in licenced restaurants,

according to the Statistics Canada survey of restaurants and caterers). Once adjustments had been made for these considerations, the 1982 values for food service in the transportation sector were (1) $115 839 000 for air lines, (2) $20 983 000 for trains, and (3) $42 364 000 for boats.

### 2.5.2 Catered versus Uncatered

Michael Haywood and Judith Bauer, compilers of the most recent Fact File, believe that caterers prepare about 70% of the food served on airlines. CP Air evidently prepares some of its own meals, but other major carriers leave the task to caterers. For railways and marine transportation, Haywood and Bauer think that virtually all food service is provided by the transportation companies themselves. Their views are based on telephone conversations with personnel employed by the major firms active in these different modes of transport. Their judgements in this matter were used to estimate the catered and uncatered portions of transportation-related food service.

### 2.5.3 Geographic Distribution of Food Service

Table 2.12 contains estimates of the percentage distribution by province of the retail value of served meals for each of the three modes of transportation. The percentage breakdown for airlines is based on information contained in a Statistics Canada publication[9] that tabulates total number of enplaned passengers during 1980 for

each major airport in the country. All airports enplaning 70 000 or more people were extracted from the list and organized by province. Then, total number of enplaned passengers was tabulated by province and the figure for each province was converted to a percentage of the whole. Those percentage figures were used in column one of Table 2.12. For trains, it was assumed that food service in each province would be equal to that province's share of the total national population. For boats, percentage figures were nothing more than a rough guess about the allocation of commercial shipping and ferries between the west coast (40%), the east coast (50%), and the Great Lakes (10%). For the east coast provinces it was assumed that the distribution of Coast Guard personnel is a reasonable indicator of how marine feeding would allocate.

Table 2.12 Provincial Shares of the Food Service on Planes, Trains and Boats

| | Percentage of National Total | | |
|---|---|---|---|
| | Planes | Trains | Boats |
| Newfoundland | 1.6 | 2.3 | 9.0 |
| Prince Edward Is. | 0.4 | 0.5 | 3.0 |
| Nova Scotia | 3.6 | 3.5 | 17.0 |
| New Brunswick | 1.3 | 2.8 | 4.0 |
| Quebec | 18.5 | 26.3 | 17.0 |
| Ontario | 33.4 | 35.4 | 10.0 |
| Manitoba | 5.0 | 4.2 | - |
| Saskatchewan | 2.6 | 4.0 | - |
| Alberta | 15.4 | 9.4 | - |
| British Columbia | 17.9 | 11.3 | 40.0 |
| Yukon & NWT | 0.3 | 0.3 | - |
| Canada | 100.0 | 100.0 | 100.0 |

## 2.5.4 Meal Receipts for Transportation Facilities

Table 2.13 was compiled by allocating total national estimates to the provinces according to the percentages given in Table 2.12. It should be obvious that the accuracy of the figures depends on the validity of the many assumptions that were made. However, even if the figures in Table 2.13 are somewhat inaccurate their general magnitudes should be reasonable reflections of reality.

Table 2.13 Transportation Facilities: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 4 852 | 1 298 | 6 150 |
| Prince Edward Island | 1 515 | 324 | 1 839 |
| Nova Scotia | 9 187 | 2 919 | 12 106 |
| New Brunswick | 2 734 | 1 054 | 3 788 |
| Quebec | 19 150 | 15 001 | 34 151 |
| Ontario | 23 271 | 27 083 | 50 354 |
| Manitoba | 2 619 | 4 054 | 6 673 |
| Saskatchewan | 1 742 | 2 108 | 3 850 |
| Alberta | 7 324 | 12 488 | 19 812 |
| British Columbia | 25 538 | 14 515 | 40 053 |
| Yukon & NWT | 167 | 243 | 410 |
| Total: Canada | 98 099 | 81 087 | 179 186 |

## 2.6 Department Stores

### 2.6.1 Estimating Food Service

Most department stores have cafeterias. Since they typically account for only about 2-3% of the total department store sales, it is easy to overlook the fact that about $250 million worth of meals are sold in them each year. The Statistics Canada survey of restaurants and caterers does not include department store cafeterias because of the fact that they are secondary sources of revenue for the businesses to which they belong.

A monthly publication issued by Statistics Canada(10) always contains information on total sales and food sales in department stores. It makes it possible to ascertain (1) the total value of receipts for meals and lunches in all department stores across Canada and (2) the total value of all department store sales in each province. During 1982, for Canada as a whole, department stores sold $250 664 000 worth of meals. In order to estimate how that money distributed between the provinces it was assumed that the percentage share of total department store sales held by each province is a proper indicator of how meal sales allocate. Table 2.14 shows the provincial distribution of total department store sales. The percentage figures in the second column were used to distribute the $250 664 000 in meal sales.

Table 2.14 Total Sales in Canadian Department Stores

| | Thousands of $1982 | Percentage of Canadian Total |
|---|---|---|
| Newfoundland | 122 188 | 1.2 |
| Prince Edward Is. | 60 479 | 0.6 |
| Nova Scotia | 275 577 | 2.7 |
| New Brunswick | 218 317 | 2.1 |
| Quebec | 1 794 875 | 17.6 |
| Ontario | 3 632 600 | 35.6 |
| Manitoba | 534 761 | 5.2 |
| Saskatchewan | 298 382 | 2.9 |
| Alberta | 1 504 376 | 14.7 |
| British Columbia | 1 729 696 | 17.0 |
| Yukon & NWT | 35 112 | 0.4 |
| Canada | 10 206 363 | 100.0 |

*Source: Statistics Canada (63-002), Department Store Sales and Stocks, December 1982 (Ottawa: Statistics Canada, 1983), pp 6-7. The percentage figures in the second column were calculated from the data in the first column.

## 2.6.2 Meal Receipts in Department Stores

Department stores operate their own food services; caterers are not involved. Consequently, it can be assumed that all 1982 food service sales escaped detection by both the Middleton study on energy conservation in restaurants (Appendix B) and the Statistics Canada survey of restaurants and caterers. Table 2.15 recognizes this by assigning the entire $250 664.000 of meal sales in department stores to the uncatered category.

Table 2.15 Department Stores: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered* | Total |
| Newfoundland | 3 008 | - | 3 008 |
| Prince Edward Island | 1 504 | - | 1 504 |
| Nova Scotia | 6 768 | - | 6 768 |
| New Brunswick | 5 264 | - | 5 264 |
| Quebec | 44 117 | - | 44 117 |
| Ontario | 89 236 | - | 89 236 |
| Manitoba | 13 034 | - | 13 034 |
| Saskatchewan | 7 269 | - | 7 269 |
| Alberta | 36 848 | - | 36 848 |
| British Columbia | 42 613 | - | 42 613 |
| Yukon & NWT | 1 003 | - | 1 003 |
| Total: Canada | 250 664 | - | 250 664 |

*There is no catering in department stores. This column of zero values is included in order to conform to the standard format adopted for all summary tables.

## 2.7 Miscellaneous Retail Establishments

### 2.7.1 The Nature of the Problem

In 1974, Statistics Canada conducted a survey of commodities sold by retail establishments around the country. It revealed that many different types of businesses sell meals to customers. Although these food service operations typically are very small and only act as secondary sources of revenue, they are when aggregated sufficiently significant to be included in this study. That 1974 survey, for example, estimated total sales of meals in miscellaneous retail establishments at $94 million.

Many different types of retail outlets occasionally offer meals on the side. Variety stores, grocery stores, delicatessans, pharmacies, service stations, and general merchandise stores are a few of the more obvious ones; there are many others. It is unfortunate that the 1974 survey by Statistics Canada is so out of date, but since more current sources of information are not available it had to be used to formulate estimates of meal sales in 1982.

The main question to be answered before an estimate could be made of the value of meals served in miscellaneous retail establishments during 1982 was: What percentage of total retail sales (excluding department stores) does meals represent? We know that in 1974 sales of meals accounted for 0.24% of all receipts(11), but we do not know

whether that very small percentage figure changed between 1974 and 1982. It is likely that sales of meals increased its percentage share during those eight years (since female labour force participation rates rose, leaving proportionately fewer women at home to cook all the meals), but the difficulty arises in trying to convert from theory to fact. The best that could be done was to assume that whatever trend occurred in department store sales of meals was paralleled by a similar trend for meal sales in miscellaneous retail stores. In 1974, sales of meals accounted for 2.26% of all department store sales whereas by 1982 that figure had risen to 2.46%. There was an increase but it was marginal. It was assumed that sales of meals in miscellaneous retail establishments experienced a similarly slight growth in its percentage share of all sales; the 1974 share of 0.24% was expected to have risen to 0.26% by 1982.

Table 2.16 tabulates total sales in all retail establishments except department stores and uses the 0.26% factor to estimate total food service sales.

### 2.7.2 Meal Receipts in Miscellaneous Retail Establishments

It is highly unlikely that any food services offered by retail establishments are contracted out to caterers. Consequently, all money taken in from food service operations can be classified as receipts to uncatered cafeterias.

Table 2.16 Food Service Receipts in Retail Establishments Other than Department Stores

| | Thousands of $1982 | |
|---|---|---|
| | Total Sales* | Food Service Sales** |
| Newfoundland | 1 634 486 | 4 250 |
| Prince Edward Is. | 351 360 | 913 |
| Nova Scotia | 2 814 313 | 7 317 |
| New Brunswick | 2 236 856 | 5 816 |
| Quebec | 21 701 254 | 56 423 |
| Ontario | 31 889 211 | 82 912 |
| Manitoba | 3 290 065 | 8 554 |
| Saskatchewan | 3 729 041 | 9 696 |
| Alberta | 9 389 425 | 24 413 |
| British Columbia | 9 856 330 | 25 626 |
| Yukon & NWT | 252 934 | 658 |
| Total: Canada | 87 145 275 | 226 578 |

*Source: Statistics Canada (63-005). Retail Trade, December 1982, (Ottawa: Statistics Canada, 1983). The figures in column one were computed by subtracting department store sales from total retail sales.

**Food service sales = total sales x .0026.

Table 2.17 summarizes the estimates of food service receipts in miscellaneous retail establishments. A cursory examination of the figures permits two clear conclusions: (1) receipts from cafeterias of this type are substantial, and (2) the distribution among the provinces of this kind of cafeteria follows very closely the distribution of the national population.

Table 2.17 Miscellaneous Retail Establishments: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered* | Total |
| Newfoundland | 4 250 | - | 4 250 |
| Prince Edward Island | 913 | - | 913 |
| Nova Scotia | 7 317 | - | 7 317 |
| New Brunswick | 5 816 | - | 5 816 |
| Quebec | 56 423 | - | 56 423 |
| Ontario | 82 912 | - | 82 912 |
| Manitoba | 8 554 | - | 8 554 |
| Saskatchewan | 9 696 | - | 9 696 |
| Alberta | 24 413 | - | 24 413 |
| British Columbia | 25 626 | - | 25 626 |
| Yukon & NWT | 658 | - | 658 |
| Total: Canada | 226 578 | - | 226 578 |

*There is no catering in miscellaneous retail establishments. This column of zero values is included in order to conform to the standard format adopted for all summary tables.

## 3.1 Cafeterias Lacking Centralized Data Sources

Scattered throughout Canada, there are certain kinds of cafeterias for which centralized sources of information are not available. For example, a large company frequently offers some sort of lunch service to its employees and yet no separate public record of this food service operation ever exists either because it is not distinguished from the rest of the company's operations or because it is delivered into the hands of a catering firm that (although covered by the Statistics Canada survey of restaurants and caterers) also reports it only as an unidentifiable part of a large business enterprise. In the former case, the cafeteria remains statistically "undiscovered" because it is classified with some other type of business totally unrelated to food service; in the latter case it is recognized as a self-service food operation but in a way that makes it impossible to identify it as a company cafeteria. Aside from calling individual companies, one by one, there is no means of determining whether they have employee feeding arrangements and, if so, whether the arrangements involve an outside catering firm. The problem becomes even more unwieldy when one contemplates the enormous variety of companies (be they industrial, commercial, financial, service, or other) doing business in Canada.

In addition to employee feeding in the private sector there is, of course, the question of employee feeding in the public sector. Federal,

provincial, and local governments all do occasionally provide their employees with some kind of lunch service. As with the private sector, however, there is no convenient way of finding the incidence of food service arrangements and the level of reliance on private catering firms.

Similarly, private clubs often have food service operations that they either operate themselves or award to catering firms. The initial impression is that cafeterias in clubs are less numerous than those intended for feeding employees in the private and public sectors. As it happens, though, caterers have captured most of the employee feeding options but have barely touched the surface of the club-related food service business. This means that uncatered cafeterias may be more significant in private clubs than in work places.

After preliminary contacts with health authorities, food distributors and catering companies, it became apparent that the only way to identify uncatered facilities was to contact directly as many as possible of the large companies, government offices, and private clubs that might be expected to operate facilities. Telephone surveying was undertaken for a period of some 12 man-days. While the survey was national in scope, available time did not permit a balanced emphasis on all activity sectors and geographic regions. A disproportionate emphasis was placed on the Vancouver area and British Columbia, as the telephoning was done from Vancouver. Also, the relatively centralized

information sources for federal and provincial government offices, golf clubs and Legions permitted them to be covered more thoroughly than other activity sectors for which representatives could only be contacted on a random basis.

Results of the survey did not provide a feeling of great satisfaction. No alternative technique, however, would have produced equal or better results with the same level of effort. Certainly, the national sampling scope is essential as the situation varies from region to region in a random manner; it would have been inappropriate to generalize nationally on the basis of a careful regional analysis. For municipal governments and industry in particular, we could only attempt to find the occasional exception to the general rule of commercial catering.

Although some specific numbers are accurate, estimates of meals served are not presented with a high level of confidence. Perhaps the most useful result of the survey is that it establishes where commercial caterers have achieved a high level of market penetration and where they have not. This information would be useful to anyone trying to design a strategy for disseminating information about energy conservation in cafeterias; catering firms can be approached much more readily than can a geographically scattered, functionally diverse collection of uncatered food service operations.

## 3.2 Company Work Places

### 3.2.1 Offices, Factories and Stores

Employers often provide a staff cafeteria or dining room at locations where large numbers of personnel work. Examples of typical locations include company head office buildings, major telephone exchange centres, factories, and large department stores. There appears to be no widely accepted rule as to the number of employees required in order to justify a cafeteria, nor the employment level beyond which a cafeteria is essential. Cafeterias for fewer than 100 employees are uncommon. Businesses with cafeterias typically have at least a few hundred employees, (although large size is no guarantee that an employee cafeteria is available). In general, cafeterias catering to relatively small employee groups provide a rather basic service with minimal cooking and energy use (e.g. service restricted to coffee, sandwiches and microwave warmings).

After surveying about 50 companies with apparent potential for a dining facility, fewer than 20 cafeterias were identified. Excepting a shipyard where cooking was restricted to microwave warming, all facilities were commercially catered. Discussion with personnel from commercial catering companies verified that this should be the case. Employers have little to gain by operating their own cafeterias; their management inputs would be at the expense of primary business interests, and

their opportunities for cost saving through bulk purchase of supplies would be less than for large commercial caterers. Thus, a reasonable assumption was that virtually all company cafeterias for business employees are operated by commercial caterers, and that activity levels are therefore reflected in Statistics Canada data on the catering industry. The small number of exceptions to this rule (i.e., cafeterias managed and operated by the employer) would for the most part offer quite limited service, and their energy use and energy conservation opportunities were judged to be relatively insignificant.

Among the business cafeterias which were identified during the telephone survey, average daily meal service ranged from 30 to 400 full-course hot meals, plus varying levels of coffee, sandwich, short order, and snack service. Staff size is not a good indicator of the level of cafeteria activity as participation levels vary greatly. Some cafeterias are operated to provide an employment incentive or a benefit under a negotiated contract, and play a major role in the diet of an average employee. Others, being only marginally more attractive in terms of cost, quality, or convenience than the alternatives (bag lunches or commercial restaurants) draw only small proportions of company staff.

While the survey did not permit a definitive statement, it is probable that the role of employee cafeterias is declining. Several businesses were

identified which had terminated cafeteria operations in recent years. Alternative arrangements (a meal voucher for a restaurant or a microwaved dinner) apparently can be adopted in order to satisfy requirements such as a free meal before an overtime shift. Mobile catering services and vending machines also appear to be playing a more important role. Furthermore, since subsidized meals for employees are now considered by Revenue Canada to be a taxable benefit, the attractiveness of employee feeding plans diminishes all around. Understandably, business operators are quite willing to terminate cafeteria operations which at best are likely to be non-profit, and in many cases require various forms of subsidy.

### 3.2.2 Industrial Cookhouses

Many industrial employees in remote locations are reliant on cookhouses for virtually all their meals. Mines, hydroelectric construction sites, oil and gas exploration sites and logging camps provide many good examples. As with cafeterias for employees in urban areas the general rule is that commercial catering companies are contracted to provide meal service.

Mines. All major mines in British Columbia, and a number of others in other provinces and territories were contacted to determine whether cookhouses are present and how they are operated. Almost one-third of British Columbia mines have cookhouses (although a number of mines are presently closed).

The proportion of employees dependent on cookhouses varies from mine to mine. At DuPont's small Baker Mine all employees use the cookhouse; at several others most of the employees use the cookhouse; at other mines only a small proportion of the employees use a cookhouse and mining companies apparently attempt to house employees in detached houses or apartments with self-contained cooking facilities.

As might be expected, mines in proximity to urban areas or small towns are unlikely to operate cookhouses while those which are very remote are almost certain to have them. Thus, except in Yellowknife, mines in the Territories have cookhouses. Spot checks with mines in other provinces indicated the proportion with cookhouses is probably somewhat less than in British Columbia.

Of some 50 mines contacted, only one operates its own cookhouse; all others with cookhouses are commercially catered. The exception is Brinco's Cassiar Asbestos mine in northern British Columbia. In 1982 its cookhouse served 82 310 man-days of food. The facility is one of very few with any record of energy use. In 1982, 59 000 L of propane were used for cooking and baking. Based on a single month's observation of a recently installed meter, annual electricity consumption is estimated at some 330 000 kW-h. In addition, for space and water heating the facility uses unmetered steam from a central plant.

Construction and Exploration Camps. Discussions with commercial catering firms indicated that major construction and exploration camps are almost certain to be commercially catered. Exceptions could be found in the case of small, temporary camps, but food-related energy use patterns and conservation opportunities at these facilities were judged to be of little relevance to this study.

Direct contact with construction and exploration camps was not attempted.

Logging Camps. A number of remote logging camps along the Pacific Coast require cookhouse and bunkhouse facilities for their employees. Typical camps are in the 30- to 60-man range, though there are a number of smaller and a few larger ones. Union representatives estimated that up to 40% of some 6 000 local union members could spend some 9 months a year in camps. Overall, this indicated a requirement for 650 000 man-days of food. As with other industrial cookhouses, however, commercial catering is common. Nevertheless, contact with a number of logging camps identified several companies which do not use commercial caterers, and self-catering was therefore estimated to provide about one-quarter of the total food service, or 160 000 meal-days.

### 3.2.3 Meal Receipts in Company Cafeterias

Mary MacPhee, Manager of the main office cafeteria at the Royal Bank of Canada in Montreal,

provided figures which describe meals served, food costs, and salaries for her operation during 1982. Table 3.1 summarizes these figures and includes calculated values for cost per lunch and average retail value of a lunch.

Table 3.1 Food Service at the Royal Bank Cafeteria in Montreal, 1982

| | No. of Meals | Food Costs ($1982) | Salaries ($1982) | Cost per Lunch* ($1982) | Average Retail Value of a Lunch** ($1982) |
|---|---|---|---|---|---|
| First Quarter | 114 122 | 107 773 | 136 785 | 2.14 | 2.64 |
| Second Quater | 111 263 | 97 878 | 159 305 | 2.31 | 2.46 |
| Third Quarter | 108 469 | 106 107 | 157 398 | 2.43 | 2.74 |
| Fourth Quarter | 105 486 | 94 314 | 149 213 | 2.31 | 2.50 |
| Year: 1982 | 439 340 | 405 982 | 602 701 | 2.30 | 2.59 |

Source: Mary MacPhee, Manager of Cafeteria Services, Royal Bank, Montreal.

*Food costs + salaries ÷ number of meals.

**Food costs x 2.8 ÷ number of meals.

This Royal Bank cafeteria should be reasonably typical of the kind of operation that provides employee feeding in the private sector. Only lunches are served, and, although efforts are made to provide tasty, nutritious, hot meals, the menu variety is limited. The calculated values in the final column of Table 3.1 suggest that the average retail value of a lunch is about $2.60. This estimate seems slightly low (especially since it is only 13% higher than the costs of food and salaries together), but since the Royal Bank is likely to operate a somewhat more expensive food service than

most private companies it was accepted as a reasonable estimate of the average retail value of a lunch for all private sector employee feeding programs.

According to Statistics Canada personnel (who were referring to their publication 72-002), there were in October of 1982 about 4 372 500 people working for companies having more than 20 employees. Given an average lunch value of $2.60 and an average work year of 240 days, this suggests an absolute maximum possible value of receipts for lunch feeding of about $2.7 billion. In fact, however, there are many considerations that would militate against a scale of employee feeding anywhere near this large. First, from the telephone survey we learned that only about 40% of all companies even have employee feeding programs. This alone reduces the figure to about $1.1 billion. Second, it is highly improbable that all employees would always take advantage of their employee feeding programs. A much more reasonable assumption is that half of them do. Thus, the $1.1 billion figure is further reduced to $550 million. Third, and finally, phone survey results suggest that only a very small proportion of all employee cafeterias actually are operated by the companies offering this particular job benefit; the vast majority of them are operated by caterers. Assuming that about 5% are uncatered, the nationwide figure for value of uncatered meals served to private sector employees is $27.5 million Even this figure may be unrealistically large, but it should at least be of the proper order of

magnitude. Table 3.2 distributes this value among the provinces and territories according to their shares of the total national population.

Table 3.2 Company Work Places: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 633 | 12 017 | 12 650 |
| Prince Edward Island | 138 | 2 612 | 2 750 |
| Nova Scotia | 962 | 18 288 | 19 250 |
| New Brunswick | 770 | 14 630 | 15 400 |
| Quebec | 7 232 | 137 418 | 144 650 |
| Ontario | 9 735 | 184 965 | 194 700 |
| Manitoba | 1 155 | 21 945 | 23 100 |
| Saskatchewan | 1 100 | 20 900 | 22 000 |
| Alberta | 2 585 | 49 115 | 51 700 |
| British Columbia | 3 107 | 59 043 | 62 150 |
| Yukon & NWT | 83 | 1 567 | 1 650 |
| Total: Canada | 27 500 | 522 500 | 550 000 |

## 3.3 Government Work Places

### 3.3.1 Federal Government

Established policy guidelines indicate that employee feeding is provided in federal government buildings whenever the level of staffing would overburden commercial restaurant facilities in the area. A caterer is always contracted to run these cafeterias, with the Canadian National Institute for the Blind (CNIB) being a frequent choice. Discussion with Statistics Canada personnel confirmed that this catered food service in government buildings is included in their survey of restaurants and caterers.

There are a few exceptions to the general rule that commercial caterers are used to provide food service to government employees. For example, geological crews and other small field operations in remote locations often rely on camp kitchens provided by the government. From the viewpoint of assessing energy use and conservation opportunities in group feeding facilities, however, the exceptions are too few in number and too unique in character to have relevance to this study.

### 3.3.2 Provincial Governments

Cafeterias are provided for use by provincial and territorial government employees in all jurisdictions except Nova Scotia and the Northwest Territories. In all cases these facilities are

operated by catering organizations, frequently the CNIB. Except for British Columbia, all these catered food service operations for provincial government employees probably are surveyed by Statistics Canada. In British Columbia, however, the Government Employees' Union (which probably is overlooked by Statistics Canada) operates three kitchens and four cafeterias in Victoria, serving an estimated 65 000 to 70 000 meals per year, plus short order, sandwiches, snacks and coffee.

In addition to self-service operations, four provinces operate more formal dining rooms to support their legislative bodies. These are under direct provincial control (typically the Speaker's Office), and thus would not be surveyed as commercial operations. Estimates of their annual meal service are:

| | |
|---|---|
| Quebec | 100 000 |
| Ontario | 110 000 |
| Saskatchewan | 80 000 |
| British Columbia | 24 000 |

While meals in these facilities would be more elaborate than in cafeterias, there would be little or no short order, sandwich, and snack service.

Though nothing comparable was identified during discussions with other provinces, another level of provincial government food service operates in British Columbia. The Department of Highways runs 11 maintenance camps at remote locations. On average, 120 men are stationed in these facilities

(15 each in the three largest), and some 44 000 man-days of food are served annually. Cooking is typically with propane, and electricity is normally available for other applications. While in total the highway camps serve a large number of meals, the small size of even the largest camps suggests that kitchen energy use patterns are more like those of a large family residence than a commercial facility.

### 3.3.3 Municipal Governments

A telephone survey of 24 municipal and local government offices suggested (1) that most of them do not have cafeterias for employees, (2) that what little employee feeding there is tends to concentrate in the larger municipalities (those with populations of 150 000 or more), and (3) that even when local government employee feeding arrangements do exist they usually are handled by catering firms. The telephone survey was insufficiently scientific to permit precise conclusions, but the general trend of the results probably is indicative; of the 24 municipalities contacted, 12 have no local government feeding operations, nine have self-service restaurants managed by caterers, and only three have cafeterias operated by the local government.

A survey such as this does not provide a sound basis for estimating the magnitude of cafeteria services for the feeding of local government employees. Perhaps a reasonable guess, however,

would be that 10-15% of all local government employees have access to uncatered cafeterias specifically intended for their use. This guess is based on the probability that (1) less than half of the local government workers have access to employee feeding programs, and (2) that of those that do, 75% would be using catered facilities.

### 3.3.4 Meal Receipts in Government Cafeterias

Using precisely the same rationale as was employed to generate a crude estimate of meal receipts in company cafeterias (Section 3.2.3), it was possible to approximate a corresponding figure for the public sector. Since public employee food service operations appear to have a marginally higher proportion uncatered than do private sector ones, it was assumed that 10% (rather than 5%) of all such food services are uncatered.

Statistics Canada issues a set of three publications that tabulate the total number of government employees by level of government (72-004, 72-007, and 72-009). By referring to recent issues of these, Statistics Canada personnel were able to provide relatively current numbers. In September of 1982 there were 445 514 federal government employees; in December of 1982 there were 401 575 provincial government employees and 287 103 local government employees. The total for all levels of government, therefore, was about 1 135 000. After going through the conceptual and computational steps outlined in

Section 3.2.3, the value of all uncatered meals in government cafeterias was estimated at $14 150 000. Once again, this was distributed among the provinces according to their share of the total national population. The results are summarized in Table 3.3.

Table 3.3 Government Work Places: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 326 | 6 183 | 6 509 |
| Prince Edward Island | 71 | 1 344 | 1 415 |
| Nova Scotia | 496 | 9 409 | 9 905 |
| New Brunswick | 396 | 7 528 | 7 924 |
| Quebec | 3 721 | 70 708 | 74 429 |
| Ontario | 5 009 | 95 173 | 100 182 |
| Manitoba | 594 | 11 292 | 11 886 |
| Saskatchewan | 566 | 10 754 | 11 320 |
| Alberta | 1 330 | 25 272 | 26 602 |
| British Columbia | 1 599 | 30 380 | 31 979 |
| Yukon & NWT | 42 | 807 | 849 |
| Total: Canada | 14 150 | 268 850 | 283 000 |

It should be noted that the Fact File[12] estimates uncatered employee feeding in the private and public sectors combined at $481 700 000 whereas in this study we have arrived at the much smaller total figure of $41 650 000. The Fact File figure is a modified value originally derived from a survey of employee food services that was conducted in 1973 by the Pay Research Bureau of the Public Research Staff Relations Board. We were not able to locate the original survey and analyze its methodology, but based on the reasoning contained

in section 3.2.3 it was concluded that the survey-derived figure must be too high. Perhaps, however, we have failed to consider some important factor. The Pay Research Bureau survey should eventually be studied to determine the reason for the very large discrepancy between its estimate and ours.

## 3.4 Clubs

### 3.4.1 Types of Clubs

Clubs and associations are of particular interest in this study as meal service is considerable, catering is rare, and internal interest in well-managed, high-quality cooking is strong. Three types of associations were identified as being of interest for their dining facilities: private clubs (social and athletic), golf clubs, and Legions. As discussed below, the survey approach varied for each group.

Private Clubs. Meal service often is a major reason for the existence of a club. Clubs frequently provide for both daily dining and occasional banquets. Catering is uncommon, although in a few athletic clubs a restaurant may operate as a separate business.

There are no consolidated sources of information on clubs. Public agencies do not survey them or compile data on their operations. There is no "association of clubs", and an Association of Club Managers does not have any relevant information. Lacking centralized sources of information, the only strategy for obtaining data is a club by club survey.

All clubs considered likely to offer meal service in the Vancouver area were contacted. Fifteen of them offer significant levels of self-catered

dining service; ten provide elaborate hot meals, while the other five serve high quality sandwiches and snacks. During 1982, they served about 410 000 hot meals; volumes for individual clubs ranged from 10 000 to 120 000. Sandwich and snack service is difficult to quantify, but, in total, sandwiches, hamburgers, and other light meals probably amounted to another 200 000 servings.

Although a similar survey was attempted for Toronto clubs, it was abandoned because of response problems. Some clubs would not part with information because they considered it private and confidential while others simply would not return telephone calls (despite the suggestion that they call collect). Victoria clubs were then contacted, and it was determined that only one private club operated a dining room (though a meal count was unavailable). A great deal of work would be required to accurately quantify meal service in Canada's private clubs. Neither time nor resources are available to undertake the appropriate survey and compilation, but since clubs are significant users of cooking energy an estimation is required. The estimates of full-course hot meal service contained in Table 3.4 assumed that clubs are confined to metropolitan areas with populations over 100 000 and that they have the same ratio of club meals to area population as observed in the Vancouver area (i.e., 500 000 meals in an area with a population of 1.25 million, or 0.4 club meals per capita).

Table 3.4 Estimates of Full-Course Hot Meals in Private Clubs, 1982

| | No. of Meals ($10^3$) | Meal Receipts* ($10^3$ of \$1982) |
|---|---|---|
| Newfoundland | 62 | 930 |
| Nova Scotia | 111 | 1 665 |
| New Brunswick | 46 | 690 |
| Quebec | 1 416 | 21 240 |
| Ontario | 2 323 | 34 845 |
| Manitoba | 234 | 3 510 |
| Saskatchewan | 127 | 1 905 |
| Alberta | 500 | 7 500 |
| British Columbia | 601 | 9 015 |
| Total: Canada | 5 420 | 81 300 |

*Assuming a \$15 average meal cost.

Table 3.4 also assumes that the average retail value of a meal in a private club is \$15. The value is so high because most private clubs have rather elaborate dining arrangements that more closely resemble full service restaurants than cafeterias. Besides, since Table 3.4 ignores all sandwich and snack service, the average meal cost would be unusually high.

Golf Clubs. Statistical data compiled by the Royal Canadian Golf Association proved that golf clubs serve a large number of elaborate meals, but quantification of the number of meals was difficult. The Association has slightly over 1 000 member clubs, 220 of whom responded to a survey on meal service revenue (excluding bar service). Their average 1982 revenue was \$185 500 (ranging from \$2 000 to over \$800 000). Of the

respondents, 75.6% operated their own dining rooms, and the balance used catering companies.

Unfortunately, there was no way of knowing whether respondents typified meal service at all golf clubs. If they were a perfectly random sample, and the average meal cost was $10, a total of over 18 million meals must have been served. But, if, as was probably the case, the response rate was higher for large clubs, a much lower number would have been appropriate. Using the $10 per meal assumption, the survey sample itself indicated 4 081 000 meals. Assuming uncatered prepared meals were in the same 75.6% proportion as self-operated dining facilities, 3 085 000 meals were prepared in facilities actually operated by golf clubs which responded to the survey. Further interpretation of the survey material would have required arbitrary assumptions, but a rough estimate of 5-10 million uncatered meals per year was considered reasonable.

Although the number of meals served by golf clubs could not be stated with accuracy, several important conclusions were drawn:

(1) Many golf clubs serve large numbers of meals in both dining room and banquet situations. Annual service levels of 10 000 to 50 000 meals must occur in several hundred golf clubs;

(2) The majority of golf club dining rooms are under management of the club, and a direct

approach to the golf clubs would be a reasonable way to stimulate interest in energy use and energy conservation opportunities;

(3) The Royal Canadian Golf Association and Provincial Golf Associations are useful sources of information on locations of member clubs and the characteristics of their dining facilities.

Legions. Dining rooms are operated by a number of Legion branches across Canada. These operations are under the jurisdiction of the local branch; Dominion Command has only cursory knowledge of the presence of dining rooms and even at the Provincial Command level, knowledge is incomplete. The following material represents information obtained through contact with all provincial commands and a number of relevant branches.

British Columbia. One dining room in Prince George serves 240 to 600 meals (including short order) each week.

Alberta. Several branches in Calgary and Edmonton have dining rooms, and other dining rooms probably operate in smaller cities (an estimated total of ten). Service levels range from about 70 000 meals per annum at Montgomery Branch to 10 000 or less in other branches.

Saskatchewan. One branch in Regina has a dining room and a couple of others have limited short order and steak service.

Manitoba. Provincial Command is unaware of any dining rooms.

Ontario. The Coronation and Eastview branches are thought to be the only two with dining rooms.

Quebec. Provincial Command is unaware of any dining rooms as such, though a few branches offer light snacks or features of the day.

Atlantic Provinces. Only the Scotia Branch in Halifax has a dining room. Meal service averages about 50 per day plus occasional banquets.

In addition to dining rooms as outlined above, most Legion branches have provision for rental of a banquet room. Availability of on-site kitchen facilities varies, but in any case such kitchens would not operate on a routine, day-to-day basis.

In summary, this sketchy survey of Legions indicates that a number of them do provide food service but that their scale of operations is quite small relative to other kinds of clubs. It seems unlikely that their total meal receipts nationwide would exceed $2-3 million.

### 3.4.2 Food Service Receipts in Clubs

Without further research, it is simply impossible to make a sound estimate of the total quantity of food service activity in all Canadian clubs. And yet, for the purposes of this study it would be more of a distortion of reality to ignore food service in clubs than to make a vague guess at its magnitude.

The Fact File estimate of total annual receipts for meals in clubs is $56 million(13). This figure, however, seems unrealistically low. With only about one-fifth of its membership reporting, the Royal Canadian Golf Association recorded $40 million in meal service revenues. It is reasonable to assume that the figure would have been substantially more than $56 million if all members had reported. This, it should be emphasized, is just golf clubs. There are many, many other clubs of many different types, and a large proportion of them have food service operations that would generate revenues. In total, therefore, 1982 club meal receipts probably amounted to much more than $56 million.

For the purpose of making a more realistic estimate of meal receipts in clubs, the following sets of assumptions were made:

1) Golf clubs served 10 million meals in 1982 at an average unit cost of $10. Of all golf club meals, 2.5 million (25%) were catered. Golf

club meal receipts varied from province to province in accordance with the proportionate distribution of the nation's total population.

2) Other private clubs served meals and obtained meal receipts in the quantities specified by Table 3.4. Catering did not occur in these clubs.

3) Legion dining facilities are sufficiently small that their 1982 meal receipts can be ignored.

Given these assumptions, food service receipts in clubs could be estimated; the results are contained in Table 3.5. Once again, it should be emphasized that these figures are not reliable; they are included only because they probably are more realistic than the obviously incorrect assumption that meal revenues in clubs are zero.

Table 3.5 Private Clubs: Estimated Food Service Receipts, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 2 655 | 575 | 3 230 |
| Prince Edward Island | 375 | 125 | 500 |
| Nova Scotia | 4 290 | 875 | 5 165 |
| New Brunswick | 2 790 | 700 | 3 490 |
| Quebec | 36 705 | 6 575 | 43 280 |
| Ontario | 61 395 | 8 850 | 70 245 |
| Manitoba | 6 660 | 1 050 | 7 710 |
| Saskatchewan | 4 905 | 1 000 | 5 905 |
| Alberta | 14 550 | 2 350 | 16 900 |
| British Columbia | 17 490 | 2 825 | 20 315 |
| Yukon & NWT | 225 | 75 | 300 |
| Total: Canada | 156 300 | 25 000 | 181 300 |

## 4.1 Reliability and Accuracy of Summary Estimates

For each type of cafeteria, the estimate of food service receipts rested on a source of information and an estimating methodology that were unique to it. In many instances, the data base upon which the estimate for a given type of cafeteria was constructed was sufficiently reliable that no serious concerns arose about accuracy. For cafeterias in schools, in hospitals and special care facilities, in military and Coast Guard installations, and in department stores, for example, the original sources of information about the magnitude of food service activities were so authoritative and so precise that suitable techniques for converting to the standard form (1982 food service receipts) readily became apparent. In other instances, however, data sources were extremely vague, or even non-existent. Such was the case with cafeterias that serve ocean (and lake) travellers, company and government employees, and club frequenters. Here it became necessary to rely on extremely fragmentary evidence about the magnitude of food service, yielding results that cannot be viewed with confidence. The only alternative in these cases would have been to engage in a highly expensive and time-consuming data collection exercise that would not have been worth the expense, especially considering the small part of the entire cafeteria picture that these problem areas appeared to represent.

Almost invariably, construction of an estimate requires the adoption of certain assumptions which, if invalid, have the potential to generate highly inaccurate results. This problem typically is dealt with by striving to make assumptions that are justifiable by either logic or experience. Naturally, the existence of reliable sources of information diminishes the need for assumptions, just as a total lack of information necessitates the use of a great many of them. In our particular case where we were trying to estimate total food service in each of a number of types of cafeterias, assumptions played a critical role whenever basic information was scanty. Thus, when looking at cafeterias connected with transportation, employee feeding, and clubs, it was necessary to substitute assumptions for facts. This simply means that these estimates are less likely to be accurate. Still, use of sweeping assumptions should not be equated with simple guessing. The rational basis for a guess is never explicit; the rational basis for an assumption-laden estimate is always explicit. Articulation of assumptions permits anyone to evaluate the reasonableness of an estimate and, if so motivated, construct a different estimate by modifying the assumptions.

## 4.2 Food Service Receipts

Cafeterias were inventoried so that some sort of estimate can have been made of the amount of energy consumed by them. Of course, putting practicalities aside, the ideal approach would be the direct one of measuring the actual energy consumption in each cafeteria operation, relating it to various indicators of cafeteria size (e.g. seating capacity, floor area, number of meals served, number of customers), and aggregating the results to obtain an impression of the larger picture. Since this ideal was unattainable, the adopted alternative strategy was to ignore the question of energy use for now and concentrate instead on measuring the magnitude of cafeteria operations. This process required the selection of a common unit of measurement--one which could easily be used to estimate probable levels of energy consumption. Food service receipts is the unit of measurement which was adopted for this purpose.

Food service receipts obviously is not an ideal indicator. The main problem with it is that it expresses a level of food service activity by referring to amounts of money. Money, unfortunately, does not have a constant value. Its worth diminishes with time (due to inflation) and varies from place to place. Every effort has been made to control for the vagaries of inflation, but there has been no attempt to adjust for the fact that a grilled cheese sandwich may cost more in

Whitehorse than in Digby. Regional variations in the cost of living mean that a certain level of physical activity, requiring fixed quantities of inputs, will not yield the same value of food service receipts in one geographic area as in another. Hopefully, this distortion is minor.

Another disadvantage of food service receipts as an indicator is that it is governed to some extent by considerations which are highly unlikely to be sensitive to energy consumption. Most energy demand in eating places occurs as a consequence of either food preparation or space heating, and yet the food service receipts in an eating place will depend to some extent on interior decor, amount and quality of table waiting (if any), and the innate expensiveness of the food being served, factors which have virtually no relationship to levels of energy consumption. Since we have been concerned in this study primarily with self-service eating places where such factors as decor, table waiting, and menu items are reasonably uniform, the problem is not immediately serious. It can become serious, however, when food service receipts are used to compare the energy demand in cafeterias with that in expensive restaurants.

In spite of all this, food service receipts was chosen as the standard indicator of cafeteria activity because it is the unit of measurement in which most available information is expressed. An attractive alternative might have been to collect information on the numbers and sizes (i.e., seating

capacities or floor areas) of cafeterias, as these units of measurement would more accurately relate to energy consumption, but unfortunately data are not often available in these forms, a difficulty that is made even more acute by the fact that information for one of these two variables is virtually useless without information for the other.

Another possible option would have been to rely on figures for meals or meal-days served. There are certain sources of data that use these units of measurement (cafeteria operations in hospitals, for example) but they still are not nearly as common a form of measurement as food service receipts. Besides, they are plagued by conceptual defects of their own. A meal can be elaborate or basic and yet it still gets tabulated as one meal. Furthermore, the concept of meals served ignores the obvious differences between a breakfast, a lunch, and a dinner; the concept of food service receipts at least begins to take this into account. As for meal-days, it is a more acceptable unit of measurement from the point of view of comparability but even it suffers from the fact that one person's meal-day might be another's meal-week.

## 4.3 Overall Size of the Cafeteria Business

Keeping in mind the limitations of the estimating procedures and the units of measurment employed in this study, it is now possible to review the results from all the individual cafeteria sectors. Appendix A consists of three tables that summarize the independent estimates of food service receipts made for the ten types of cafeterias. One of the three tables shows total receipts for all cafeterias while the other two show how these total receipts distribute between catered and uncatered operations. The tables in Appendix A are the essential quantitative outcome of this study but their level of detail is too great to permit intelligible analysis within the body of the report. Consequently, this summary chapter has used them to develop simple tables, graphics, and text that more vividly portray the main conclusions of the study.

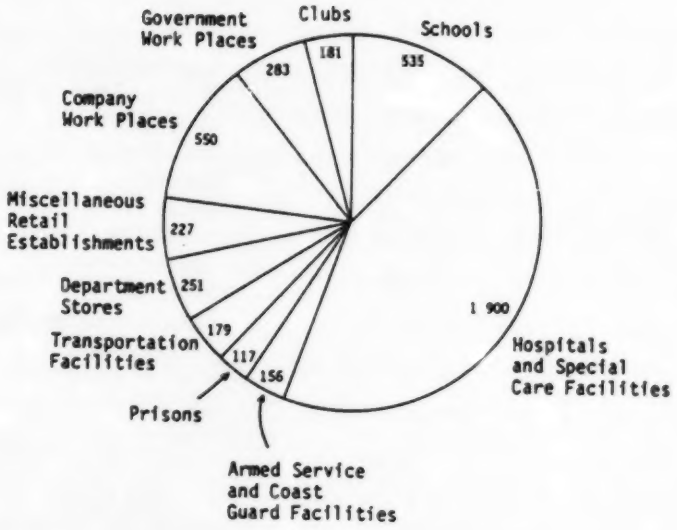
Food service receipts in Canadian cafeterias were estimated to have been 4.4 billion during 1982. Hospitals and special care facilities accounted for a large part (43%) of the total, but other types of cafeterias also were important. Figure 4.1 shows how much of the $4.4 billion was accounted for by each type.

It is worth noting that none of the types of cafeterias is insignificant. Even in prisons, (the smallest sector), food service involves the

preparation of over $100 million worth of meals each year.

Figure 4.1 Distribution of 1982 Food Service Receipts Among the Different Types of Cafeterias

Total meal receipts in cafeterias: $4 397 million




Note: values in the pie graph are millions of $1982

Cafeteria meal receipts vary greatly from one province to the next, but almost all of the variation is accounted for by interprovincial differences in population. When per capita meal

receipts are calculated for the individual provinces, the result is a surprisingly uniform distribution of cafeteria services. As Table 4.1 shows, the per capita figure for the country as a whole is $178 and only varies between $153 and $208 for individual provinces.

Table 4.1 Per Capita Receipts in Cafeterias, 1982

| | $1982 |
|---|---|
| Newfoundland | 153 |
| Prince Edward Island | 201 |
| Nova Scotia | 208 |
| New Brunswick | 184 |
| Quebec | 161 |
| Ontario | 177 |
| Manitoba | 195 |
| Saskatchewan | 187 |
| Alberta | 190 |
| British Columbia | 192 |
| Yukon & NWT | 172 |
| CANADA | 178 |

## 4.4 Catered Operations

A differentiation between catered and uncatered cafeterias has been maintained throughout this study because of the fact that the Middleton study (Appendix B) included an estimate of catered operations but did not encompass uncatered ones.

The Middleton study relied totally on the 1981 Statistics Canada survey of restaurants, caterers, and taverns for its estimate of catered meal receipts. In 1982, that same ongoing Statistics Canada survey estimated receipts to caterers at $822 million. This study, on the other hand, using independent estimating techniques, arrived at a figure of $1 306 million, a quantity that is almost 60% higher than the Statistics Canada number. Table 4.2 provides a sector-by-sector breakdown of receipts for catered meals as estimated in this report.

Table 4.2 Estimated Food Service Receipts in Catered Operations, 1982

| | thousands of $1982 |
|---|---|
| Schools | 283 128 |
| Hospitals and Special Care Facilities | 108 457 |
| Military and Coast Guard Facilities | 17 500 |
| Prisons | - |
| Transportation Facilities | 81 087 |
| Department Stores | - |
| Miscellaneous Retail Stores | - |
| Company Work Places | 522 500 |
| Government Work Places | 268 850 |
| Clubs | 25 000 |
| TOTAL | 1 306 522 |

There is no ready explanation for the discrepancy between the total figure in Table 4.2 and the Statistics Canada estimate. On the one hand, the value derived by this study is largely governed by the estimated values for employee feeding, a type of food service operation for which statistics are painfully scanty and for which estimates had to be made based on daunting assumptions. On the other hand, the Statistics Canada estimate has for some time been perceived as unrealistically low by personnel at Foodservice and Hospitality Magazine, and during the course of this research questions have occasionally arisen about the completeness of the universe from which the Statistics Canada sample is drawn (for example, Does the Statistics Canada survey cover CANEX and non-profit caterers?).

No attempt will be made to rationalize the difference between the two values in question. The issue is raised only because the numbers should be close to the same and the reader has a right to know that they are not.

Subsequent references to catered operations assume that the estimate derived by this study is correct and that the Statistics Canada figure is too low.

## 4.5 Uncatered Operations

Uncatered operations are widespread in some kinds of cafterias but relatively scarce in others. Figure 4.2 portrays the estimated meal receipts for each type of cafeteria and differentiates between the catered and uncatered shares. It is evident that most hospital and special care facilities operate their own cafeterias whereas both private and public work places tend to have cafeterias that are run by catering firms. Schools and transportation facilities are fairly evenly split between the two kinds of arrangements; remaining cafeteria sectors are relatively untouched by catering.

When viewed from a geographic perspective, the prevalence of uncatered operations does not vary much. As Table 4.3 shows, uncatered cafeterias account for about 70% of all cafeteria meal receipts nationwide, an average figure around which all provinces except Newfoundland cluster. Newfoundland is an anomaly because its hospitals and special care facilities rely heavily on catering firms to provide food services.

Figure 4.2 Meal Receipts in Cafeterias: Uncatered and Catered Operations

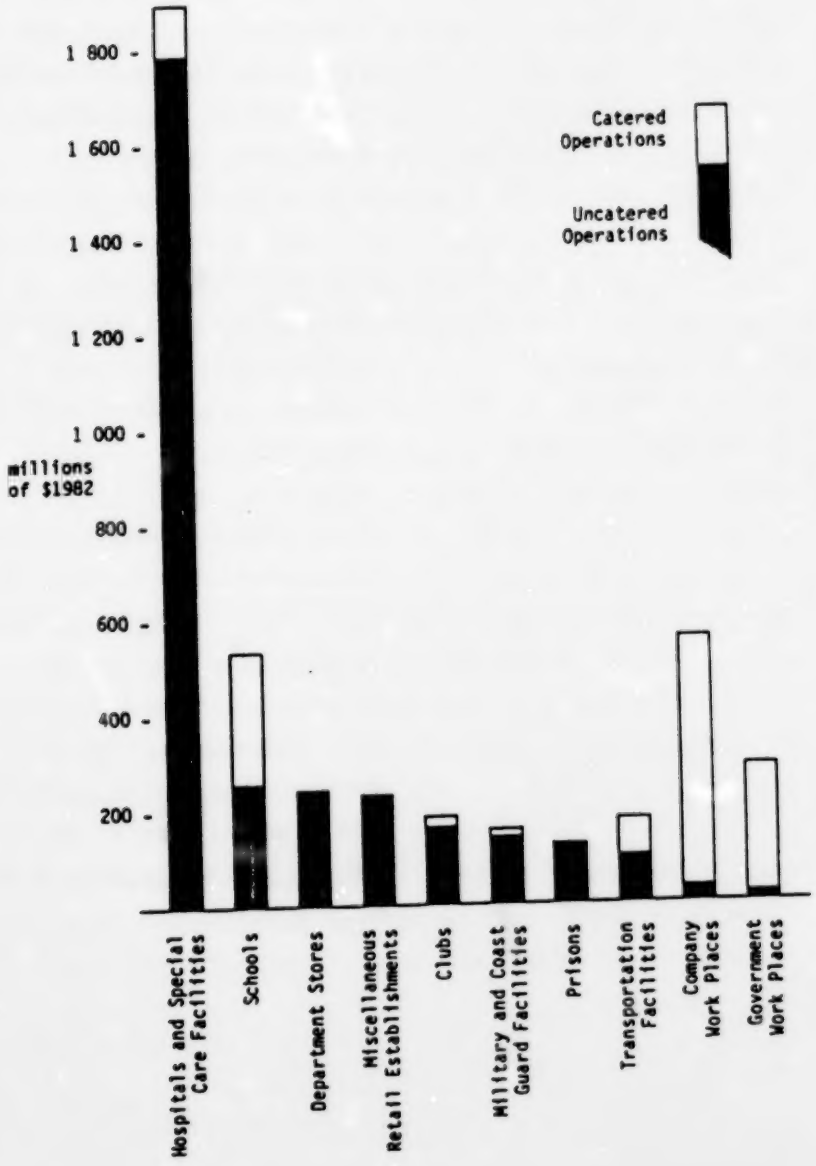


Table 4.3 Uncatered Cafeterias: Geographic Variation

| | % of All Cafeteria Meal Receipts |
|---|---|
| Newfoundland | 48 |
| Prince Edward Island | 76 |
| Nova Scotia | 68 |
| New Brunswick | 72 |
| Quebec | 70 |
| Ontario | 69 |
| Manitoba | 75 |
| Saskatchewan | 74 |
| Alberta | 69 |
| British Columbia | 75 |
| Yukon & NWT | 67 |
| CANADA | 70 |

## 4.6 The Entire Food Service Business

According to the Middleton Associates study (Appendix B) food service receipts in premises included in the Statistics Canada survey of restaurants, caterers and taverns totalled $7.658 billion in 1981, a figure that, when adjusted for inflation, was about $8.484 billion by 1982. The Middleton study also provided a 1981 estimate of food service receipts in accommodation restaurants, a type of facility not covered by the Statistics Canada survey. When that number was similarly adjusted for inflation, it became $869 million. Thus, the Middleton work suggests that 1982 food service receipts, excluding uncatered cafeterias, totalled $9.353 billion.

This study has estimated total cafeteria meal receipts at $4.379 billion, $1.306 billion of which was catered and $3.073 billion of which was not. When an appropriate portion of catered meal receipts (Section 4.4) and all of the uncatered meal receipts were added to the $9.353 billion figure derived from the Middleton study, the final estimate for meal receipts in all types of eating establishments became $12.910 billion. Table 4.4 shows how this estimate of total meal receipts apportions among the many different types of eating establishments addressed in both this report and in the work by Middleton Associates.

There is no sure way of evaluating the accuracy of this $12.910 billion figure, but a partial attempt

Table 4.4 Estimated 1982 Meal Receipts in All Types of Food Service Establishments

| | Meal Receipts ($10^3$ of $1982) | % of Total |
|---|---|---|
| Licenced Restaurants | 3 366 449 | 26.1 |
| Unlicensed Restaurants | 2 367 707 | 18.3 |
| Drive-In Restaurants | 447 712 | 3.5 |
| Take-out Restaurants | 1 265 647 | 9.8 |
| Refreshment Stands | 180 807 | 1.4 |
| Beverage Rooms, Bars & Clubs | 34 439 | 0.3 |
| Restaurants in Hotels, Motels & Camping Areas | 868 581 | 6.7 |
| Cafeterias in Schools | 535 410 | 4.1 |
| Cafeterias in Hospitals & Special Care Facilities | 1 899 872 | 14.7 |
| Cafeterias in Armed Service & Coast Guard Facilities | 156 262 | 1.2 |
| Cafeterias in Prisons | 116 891 | 0.9 |
| Cafeterias in Transportation Facilities | 179 186 | 1.4 |
| Department Store Restaurants | 250 664 | 1.9 |
| Eating Places in Miscellaneous Retail Establishments | 226 578 | 1.8 |
| Cafeterias in Company Work Places | 550 000 | 4.3 |
| Cafeterias in Government Work Places | 283 000 | 2.2 |
| Club Restaurants | 181 300 | 1.4 |
| Total | 12 910 505 | 100.0 |

Note: Meal receipts for licenced restaurants, unlicensed restaurants, drive-in restaurants, take-out restaurants, refreshement stands, and beverage rooms/bars/clubs have been estimated by assuming a percentage distribution of receipts derived from the preliminary Middleton Associates study.

was made by referring to the 1981 figure for per capita expenditure in restaurants (14) which, when adjusted for inflation, was approximately $418 in 1982, a value which (given the size of the national population) suggests a total 1982 expenditure in restaurants of $10.293 billion. Since this figure would overlook meals not paid for directly (e.g., hospital meals, school lunches, subsidized employee feeding programs), it tends to confirm the accuracy of the $12.910 billion estimate being proposed here.

## 5.1 The Search for Energy Data

During the process of compiling an inventory of cafeterias across Canada, over 250 telephone calls were placed to individuals who might be knowledgeable about cafeteria operations. Many of the calls were directed to facilities that operate cafeterias; many were to government offices and private associations that were thought to have some sort of involvement with cafeterias. In most instances, when someone was called they were asked whether they knew of any cafeteria that had been subjected to an energy audit. Not one energy audit of a cafeteria operation was discovered using this approach. There were two or three instances in which people were vaguely aware of a partial energy audit, but in each case either the audit was for a whole building, within which a cafeteria happened to be located, or it was for one or two special pieces of power-generating equipment that, although totally dedicated to serving a specific food service energy use, did not supply all the energy needs of a single cafeteria. As a result, little information about energy consumption in cafeterias was obtained by calling people.

As this pattern of non-response gradually began to reveal itself, a decision was made to contact large catering firms with the explicit aim of obtaining energy use information. It was felt that the large catering firms would be the ones most likely to become involved in energy monitoring and conservation programs, and so their head offices

were contacted in an effort to ascertain whether this was so. The following major firms were surveyed: V.S. Services, Department of National Defense, Canteen of Canada, Saga Management, Parnell Foods, Domco Foodservices, Fortier and Associates, Beaver Foods, Canada Catering, and CANEX. For two large catering operations (CNIB Caterplan Services and Crown Caterers), telephone calls were made but knowledgeable personnel were not reached. Of the ten large firms that were surveyed, only one was able to provide any information relevant to the question of energy use patterns in cafeterias.

Mr. Deknatel with Domco Foodservices stated that his firm has recently had energy audits done in some of its cafeterias. He was unwilling to release any of the results of those audits because, he said, they still were being analyzed, but he did proffer two pieces of general information about energy consumption in foodservice operations managed by Domco:

(1) energy consumption represents 2.5% of total sales in full-service restaurants and 5% of total sales in cafeterias, and

(2) the installation of low-temperature dishwashers in Domco-managed highway service station food service operations had resulted in an 8% savings on total energy costs.

## 5.2 The Main Problems

The complete failure to obtain new information about energy consumption in cafeterias appears to have been the result of three main stumbling blocks. First, there is the fact that energy still does not represent a substantial portion of the total operating costs in a cafeteria and thus does not attract a great deal of managerial attention. If, as Mr. Deknatel suggests, energy costs are only about 5% of total costs in cafeterias, then it is easy to see why managers would be much more concerned with such matters as food costs and personnel, each of which is a very large factor in food service production. Unfortunately, it is not widely recognized that savings through energy conservation, although relatively small, are extremely valuable because they are so easily attained and because they provide a substantial competitive edge if energy costs ever escalate again.

Second, there is a technical problem that usually complicates any efforts to isolate cafeteria energy costs. The typical cafeteria is located in a part of a larger building that houses other types of activity as well. It is almost always the case that energy use is measured for the entire building, and not for the individual enterprises located within it. Although this problem is most acute for energy use related to space heating, it is almost as serious for other types of energy use such as lighting, water heating, and operation of

appliances. The consequence of this is that an audit of energy consumption in a cafeteria practically always requires the use of special equipment designed to isolate cafeteria energy use from energy use in the rest of the building. This, of course, is expensive and time consuming, and from the manager's point of view, hardly justifiable considering the relatively minor role of energy in total operating costs.

Third, there is the fact that catering firms rarely have to pay for the energy they use to operate a cafeteria. Thus, they have no incentive to monitor energy consumption and implement conservation programs. There are exceptions, but the typical situation is that a catering firm is offered the right to use a specific part of a building for the purpose of running a cafeteria, a right for which the caterer pays either in the form of a fixed fee or as a certain percentage of its profits. Often, an estimate of energy costs is included in the fee that a caterer pays, but this is usually nothing more than a fixed value that is relatively insensitive to changes in the actual amount of energy used in the cafeteria. Since energy consumption in a typical cafeteria is not separately metered, the energy bill usually is paid directly by the building owner or leaseholder; the caterer, who is the only entity in a position to monitor cafeteria energy consumption and conserve on its use, can only be billed in some indirect and imprecise manner. Considering the structure of this arrangement, it is not surprising that large

catering firms do not do more to audit their use of energy.

It should be mentioned that both clients and caterers are beginning to show greater awareness of the importance of energy costs. Some clients are now requiring caterers to absorb energy costs by making it a separate, explicit part of their contractual arrangements. For example, Brian Stevens, with the Vancouver office of Versa Services, was able to cite one instance in which an 1 800-student community college was asking the caterer to pay $50 000 for energy each year. Still, in spite of this trend, the problem of separate metering for energy use in cafeterias continues to be widespread.

## 5.3 Existing Studies of Cafeteria Energy Use

The Middleton Associates report entitled Energy Requirements in Canadian Restaurants (15) is the only study of cafeteria energy use that could be located. The report actually examined energy demand in all types of restaurants, not just cafeterias. It identified four different types of food service operations and treated each separately: (1) restaurants with liquor, (2) restaurants without liquor, (3) fast-food restaurants, and (4) institutional, catering and contract food service. The last category corresponds to the type of operation conceived of as a cafeteria in this study.

In order to measure energy demand, Middleton Associates went through a three-stage research process. First, a questionnaire survey designed to solicit information about energy demand was distributed to over 1 300 restaurants across Canada. About 100 restaurants adequately completed and returned the questionnaires, but not many of them were cafeterias. Second, 44 restaurants (11 of each of the four identified types) were visited for the purpose of obtaining more precise information about energy use. Estimates in each of these 44 cases were based on the rated capacity of the various pieces of equipment, the hours of operation of the restaurant, and the levels of energy consumption indicated on utility bills. Third, one restaurant of each type was subjected to on-site monitoring of energy demand.

Although the study compiled a substantial amount of information about energy use in restaurants, data on institutional types of operations were weak. Very few cafeterias responded to the questionnaire; cafeterias visited during the intermediate research stage could provide only vague and incomplete energy demand data because of their location in a larger, multi-purpose building; information from the monitored institutional cafeteria failed to relate energy use to scale of operations and overlooked energy use for space heating.

In spite of the chronic problems encountered in trying to assess cafeteria energy use, certain useful information did emerge from that portion of the study devoted to on-site inspection of 44 restaurants. Seven institutional operations provided sufficient data to arrive at general conclusions about how cafeterias use energy. Although there were substantial variations from one institutional operation to the next, energy consumption among the various food service operations tended to distribute as follows:

| | |
|---|---|
| cooking and serving | 40% |
| heating, ventilation and cooling in the kitchen | 20% |
| refrigeration | 15% |
| washing | 15% |
| lighting | 10%. |

In addition to food service operations, however, there is the question of space heating in the dining area. Because of the problem of

distinguishing between the cafeteria and the rest of the building, the seven cafeterias were unable to provide energy consumption figures for space heating. However, figures were given for floor area of both the cafeteria and the building (thus permitting calculation of the cafeteria's percentage share of the entire building space), and a value was given for total energy use for the entire building. By subtracting the estimated cafeteria food service energy consumption from the energy consumption of the total building, it was possible to roughly estimate the space heating energy consumption for the building. The cafeteria's percentage share of the entire floor area of the building should roughly correspond to its percentage share of the total space heating energy bill. This estimation procedure was used to obtain the figures presented in Table 5.1. The main conclusion that can be drawn from the table is that, of total energy demand in a cafeteria, roughly 60% is due to food service activities and 40% is the result of space heating.

Table 5.1 Energy Demand in Seven Institutional Food Service Operations

| | GJ/a | | % | |
|---|---|---|---|---|
| | Food Service Activities | Space Heating | Food Service Activities | Space Heating |
| Commissary | 2 581 | 2 579 | 50.0 | 50.0 |
| Office Cafeteria | 1 420 | 1 211 | 54.0 | 46.0 |
| Office Cafeteria | 835 | 336 | 71.3 | 28.7 |
| Office Cafeteria | 1 473 | 1 612 | 47.7 | 52.3 |
| Office Cafeteria | 2 880 | 2 301 | 55.6 | 44.4 |
| Hotel | 11 270 | 697 | 94.2 | 5.8 |
| 24-Hour Cafeteria | 10 720 | 6 157 | 63.5 | 36.5 |
| AVERAGE* | | | 62.3 | 37.7 |

Source: Middleton Associates, Energy Requirements in Canadian Restaurants (Ottawa: Agriculture Canada, 1981), p 29.

*These averages are unweighted; they assume that the seven institutional food service operations are equal in importance. The averages are computed based on the percentage values, not the actual energy consumption values.

## 5.4 Energy Consumption Nationwide

For the purpose of making a rough estimate of the value of total energy consumption in cafeterias across Canada, it was assumed that when Mr. Deknatel identified energy costs as being 5% of total cafeteria sales in Domco roadside food service operations he in fact hit upon an accurate average figure for cafeterias nationwide. Given the estimated food service receipts contained in Appendix A, it was an easy matter to extract 5%. The results are shown in Table 5.2

Table 5.2 Estimated Energy Costs in All Cafeterias, 1982

| | Thousands of $1982 | | |
|---|---|---|---|
| | Uncatered | Catered | Total |
| Newfoundland | 2 137 | 2 276 | 4 413 |
| Prince Edward Island | 938 | 298 | 1 236 |
| Nova Scotia | 6 014 | 2 868 | 8 882 |
| New Brunswick | 4 664 | 1 791 | 6 455 |
| Quebec | 36 503 | 15 469 | 51 972 |
| Ontario | 53 341 | 23 926 | 77 267 |
| Manitoba | 7 563 | 2 554 | 10 117 |
| Saskatchewan | 6 816 | 2 348 | 9 164 |
| Alberta | 15 237 | 6 800 | 22 037 |
| British Columbia | 20 016 | 6 796 | 26 812 |
| Yukon & NWT | 403 | 201 | 604 |
| Total: Canada | 153 632 | 65 327 | 218 959 |

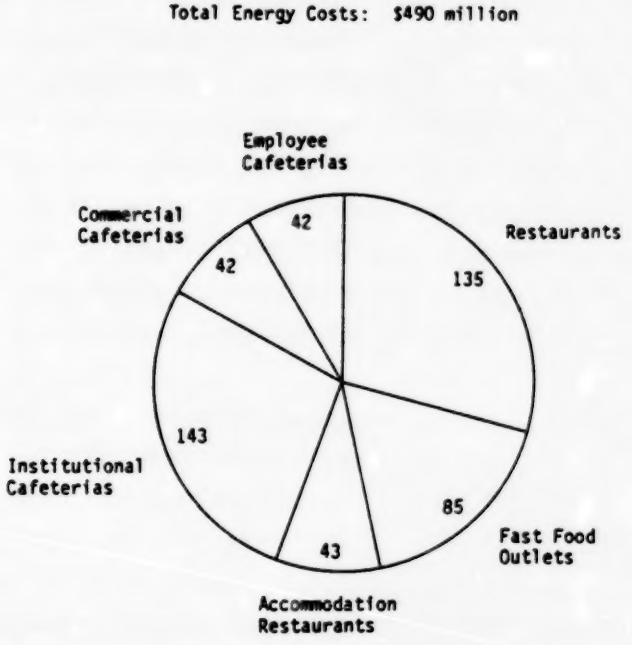
What is being suggested here is that the total cost of cafeteria energy use in 1982 was about $220 million. This is obviously a very approximate figure that does not directly consider regional variations in the price of energy. Neither does it

tell us the actual amount of energy being consumed. Still, it gives a preliminary impression of the general magnitude of cafeteria-related energy consumption in Canada. This in turn will permit a rough approximation of the potential for energy savings represented by energy conservation programs. If, for example, energy conservation programs have the ability to reduce energy consumption in food service operations by 30-40%, then implementation of such programs across Canada could mean a total savings in energy costs of $65-85 million.

By assuming that Mr. Deknatel was also correct when he estimated energy costs in full-service restaurants at 2.5% of reciepts, it was possible (by referring to Table 4.4) to approximate the total annual cost of energy consumption for all types of eating establishments. The results are given in Figure 5.1. Licensed and unlicensed restaurants were considered as full-service and thus were expected to spend 2.5% of their meal receipts on energy bills. Since drive-in restaurants, although clearly not of the full-service type, are believed to have comparable patterns of energy use, they too were considered to have energy costs representing 2.5% of their meal receipts. For all remaining types of eating establishments, energy costs were set at 5% of meal receipts.

Figure 5.1 shows that total annual energy costs for the entire food service industry may be around $490 million, almost half of which is accounted for by

Figure 5.1 Estimated Energy Costs in All Food Service Establishments, 1982




Note: Values in pie graph are millions of $1982. Restaurants include licensed and unlicensed; fast food outlets include drive-in and take-out restaurants, refreshments stands, and bars; institutional cafeterias include those located in schools, hospitals and special care facilities, armed service and Coast Guard facilities, and prisons; commercial cafeterias include those located in transportation facilities, department stores, miscellaneous retail establishments, and clubs; employee cafeterias include those located in company and government work places.

cafeterias. Assuming, once again, that conservation measures could save 30-40% of all energy used, there is the potential to reduce the total food service energy bill by $145-195 million.

## 6.1 The Main Suggestion

There now exists a comprehensive estimate of the magnitude of the food service industry in Canada. The preliminary Middleton study (Appendix B), inventoried restaurants and caterers while this research covered all cafeterias (whether catered or not). By integrating the results of the two studies one can obtain a reasonably complete picture of the total size of the food service industry.

Since both studies occasionally had to rely on suspect data, weak assumptions, and faulty estimating procedures, their final results are bound to contain inaccuracies. Nevertheless, the likely margin of error probably is acceptable considering the intended use of the research results. The main reason for estimating the total size of the food service business is to provide half of the information needed to solve the following (conceptually simplified) equation:

| Total size of the food service industry | X | Average energy demand per unit of size | = | Total energy demand in the food industry |
|---|---|---|---|---|

The final goal here is to obtain an estimate of the total energy demand in the food service industry (disaggregated by type of operation and by geographic region), and yet once the goal is achieved it will in a sense be little more than an end in itself. Presumably, it will be used to make

people aware of the fact that Canadian food service operations use large amounts of energy, much of which could be conserved. For such a purpose, highly accurate results are unjustifiable since they would necessitate unreasonably large research costs. Consequently, no further research need be done to measure the size of the food service industry.

On the other hand, the equation described above cannot be solved without an estimate of the average energy demand per unit of size of food service operation. Since both this study and the Middleton study summarized in Appendix B measure size in receipts for meals, the needed information is average energy demand per dollar of meal receipts. This figure can vary from one type of food service operation to the next and from one province to another, but it must relate energy demand to dollar receipts before the above equation can be solved. For this reason, the most pressing research need is for an analysis of the relationship between energy demand and meal receipts in food service operations. Middleton Associates began to address this question in its study entitled Energy Requirements in Canadian Restaurants, but the results cannot be used directly because consumption was not systematically related to meal receipts, because the sample of cafeteria operations was too small to be statistically useful, and because the question of energy use for space heating was not adequately addressed.

Whoever formulates a methodology for exploring the relationship between energy demand and meal receipts might be able to take advantage of two ideas. First, it may be possible to obtain the cooperation of the energy bus program sponsored by Energy, Mines and Resources Canada. Under this program, individual businesses can have free energy audits done and can obtain free advice regarding how best to achieve energy conservation. If the energy bus program were to seek out food service operations, conduct energy audits, and make the results available for this proposed research, the only additional data requirement would be for meal receipts during the time of the energy audit, a type of information that could be gathered by a single researcher accompanying the regular energy bus operating crew.

The second idea (suggested by Michael Haywood and Judith Bauer) addresses the problem of identifying cafeterias that, because of their usual location within larger buildings, are unable to provide detailed energy demand data specific to their operations only. In this regard, cafeterias in department stores might be particularly likely to possess the required information because effective management of department store operations often involves identifying costs and revenues associated with each separate section, or department, in the store. Even more promising is the possibility that air line catering could yield precise energy data since firms involved in this kind of catering often

house their operations in totally separate buildings that include no other types of activity.

In addition to these general categories of possibilities, there is the occasional cafeteria that happens by chance to be located in a separate building where independent energy metering is possible. Examples discovered during this research include cafeterias in British Columbia at the MacMillan Bloedel pulp mills (Nanaimo and Harmac) and at the Brinco Asbestos Mine (Cassiar).

## 6.2 Other Suggestions

One fruitful kind of research would relate current and projected energy price levels to existing and anticipated patterns of energy demand in food service operations. The study could be structured in such a way as to evaluate the competitive edge that would accrue to a firm having an effective energy conservation program, both now and in the future when fuel price increases cause energy to become a larger share of total operating costs. In other words, the study would show (1) whether energy will become a more significant factor in restaurant operating costs, (2) if it does, how much increase in profits an energy conscious operation might expect, and (3) the extent to which higher profit margins would permit price cutting for the purpose of increasing business and expanding market share.

It might also be useful to study the growth potential of the food service industry. One major consideration here would be projected changes in dining habits resulting from such dynamic forces as economic growth or stagnation, participation in the labour force (especially by women), and changes in average family size. Another would be projected changes in the size, age-structure, and geographic distribution of the total population. Throughout the food service industry there seems to be a vague sense that a long period of rapid growth is coming to an end and that the next decade or two may witness a much slower rate of expansion. If this

is true, then the industry will become more competitive, profit margins will diminish, survival will be more difficult, and managers will pay more attention to energy conservation. A study of the growth potential of the industry would help determine whether or not this scenario is likely.

Finally, there may be a need for a small study that addresses the questions of (1) how to locate people and firms interested in energy use and conservation, and (2) how to notify all the various types of food service businesses about energy conservation measures that could improve the efficiency of their operations. A study of this sort would facilitate the development of communication channels between centres of energy technology research (such as the Office of Industrial Research) and food service operations, each group of which has information useful to the other.

| | |
|---|---|
| Title | Adult Correctional Services in Canada, 1981-1982 |
| Author(s) | Canada. Canadian Centre for Justice Statistics, Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / March, 1983 / 133 pages |
| Available from/Price | Publications Division<br>Statistics Canada<br>Ottawa, Ontario<br>K1A 0T6<br>$8.45 |
| Catalogue & Indexing Numbers | 85-211 |
| Key Words | Correction Services/Justice/Penitentiaries/Prisons/ Statistics |
| Sector Applicability | None |

Abstract

Tables and graphs present information about the magnitude of custodial and non-custodial services for inmates and offenders. In addition, there are materials which describe costs and expenditures associated with correctional services.

| | |
|---|---|
| Title | Advance Statistics of Education, 1982-83 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1982 / 30 pages |
| Available from/Price | Publications Distribution<br>Statistics Canada<br>Ottawa, Ontario<br>K1A -T6<br>$4.50 |
| Catalogue & Indexing Numbers | 81-220 |
| Key Words | Education/Statistics |
| Sector Applicability | None |

Abstract

This annual publication provides a summary of education statistics for the beginning of each school year: number of schools, number of teachers, enrolment by province, and number of university graduates. Most of the tabulated information is broken down by province.

| | |
|---|---|
| Title | Air Carrier Traffic at Canadian Airports, 1980 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1981 / 113 pages |
| Available from/Price | Publications Distribution<br>Statistics Canada<br>Ottawa, Ontario<br>K1A 0T6<br>$8.45 |
| Catalogue & Indexing Numbers | 51-203 |
| Key Words | Airports/Traffic/Statistics |
| Sector Applicability | None |

Abstract

Issued annually, this compilation identifies the 50 busiest airports in Canada and tabulates their volume of passengers, their numbers of flights, and the magnitude of their mail and cargo movements.

| | |
|---|---|
| Title | Department Store Sales and Stocks, December 1982 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1983 / 41 pages |
| Available from/Price | Publications Distribution<br>Statistics Canada<br>Ottawa, Ontario<br>K1A OT6<br>$3.15 |
| Catalogue & Indexing Numbers | 63-002 |
| Key Words | Department Store/Sales/Stocks/Statistics |
| Sector Applicability | Office Residential Restaurants Industrial **Retail** |

Abstract

This is a monthly publication that tabulates department store sales. There are breakdowns for provinces and for selected metropolitan areas. Sales and inventories of individual store departments also are given.

| | |
|---|---|
| Title | List of Canadian Hospitals and Special Care Facilities, 1982 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1983 / 274 pages |
| Available from/Price | Publications Distribution<br>Statistics Canada<br>Ottawa, Ontario<br>K1A 0T6<br>$10.60 |
| Catalogue & Indexing Numbers | 83-201 |
| Key Words | Hospitals/Special Care Facilities/Statistics |
| Sector Applicability | None |

Abstract

Published annually, this tabulates the number of hospitals and special care facilities and indicates the bed capacity of each facility. There are aggregate tables that show provincial totals for each type of facility.

| | |
|---|---|
| Title | Restaurants, Caterers and Taverns Industry Survey, December 1982 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1983 / 4 pages |
| Available from/Price | Publications Distribution<br>Statistics Canada<br>Ottawa, Ontario<br>K1A OT6<br>$1.55 |
| Catalogue & Indexing Numbers | 63-011 |
| Key Words | Caterers/Restaurants/Survey/Taverns/Statistics |
| Sector Applicability | Office Residential Restaurants Industrial Retail |

Abstract

Tabulations are provided which show total net sales receipts. There are breakdowns by kind of business and by province.

| | |
|---|---|
| Title | Retail Trade, December 1974 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1975 / 59 pages |
| Available from/Price | unavailable/not applicable |
| Catalogue & Indexing Numbers | 63-005 |
| Key Words | Retail/Trade/Statistics |
| Sector Applicability | Office Residential Restaurants Industrial **Retail** |

Abstract

Issued monthly, this statistical compilation provides current estimates of retail sales, separately tabulated by province, by kind of business, and by chain versus independent stores.

| | |
|---|---|
| Title | Retail Trade, December 1982 |
| Author(s) | Canada. Statistics Canada. |
| Publisher/Date/Pages | Statistics Canada / 1983 / 67 pages |
| Available from/Price | Publications Office<br>Statistics Canada<br>Ottawa, Ontario<br>K1A OT6<br>$3.70 |
| Catalogue & Indexing Numbers | 63-005 |
| Key Words | Retail/Trade/Statistics |
| Sector Applicability | Office Residential Restaurants Industrial Retail |

Abstract

Issued monthly, this statistical compilation provides current estimates of retail sales, separately tabulated by province, by kind of business, and by chain versus independent stores.

| | |
|---|---|
| Title | Fact File on Canadian Hospitality Business, Fourth Edition |
| Author(s) | Ellwood, Arthur D. (Ed.) |
| Publisher/Date/Pages | Foodservice and Hospitality Magazine / 1980 / 212 pages |
| Available from/Price | Foodservice and Hospitality Magazine<br>165 Bloor Street East<br>Toronto, Ontario<br>M4W 1C8<br>$100.00 |
| Catalogue & Indexing Numbers | not available |
| Key Words | Hospitality/Foodservice/Lodging/Statistics |
| Sector Applicability | Office Residential Restaurants Industrial Retail |

Abstract

Canada's food service and lodging industries are statistically described in this publication. The format is the same as the fifth edition of the Fact File.

Critique

There is an organized collection of statistical tables, most of which seem to be based on reasonably reliable sources of information.

| | |
|---|---|
| Title | Fact File on Canada's Hospitality Business, Fifth Edition |
| Author(s) | Haywood, Bauer and Associates, Inc. (Ed.) |
| Publisher/Date/Pages | Foodservice and Hospitality Magazine / 1982 / 212 pages |
| Available from/Price | Foodservice and Hospitality Magazine<br>165 Bloor Street East<br>Toronto, Ontario<br>M4W 1C8<br>$125.00 |
| Catalogue & Indexing Numbers | not available |
| Key Words | Hospitality/Foodservice/Lodging/Statistics |
| Sector Applicability | Office Residential **Restaurants** Industrial Retail |


Abstract

This statistical compilation provides information on many aspects of the food service and lodging industries in Canada. Most tables are designed to show the sizes of the various parts of these two industries.


Critique

Well-researched, well-documented and reasonably comprehensive, this publication is the definitive source of information about food service and lodging in Canada. It relies heavily on other sources for its basic data (e.g. Statistics Canada), but it organizes and integrates information in a manner that facilitates the location and interpretation of statistics.

| | |
|---|---|
| Title | "Who Leads in Contract Foodservice" |
| Author(s) | Higginbottom, David |
| Publisher/Date/Pages | Foodservice and Hospitality Magazine / March, 1978 / pp 48-50 |
| Available from/Price | unavailable/not applicable |
| Catalogue & Indexing Numbers | not applicable |
| Key Words | Foodservice/Caterers |
| Sector Applicability | Office Residential **Restaurants** Industrial Retail |


Abstract

The article identifies the major catering firms and estimates their respective market shares. Also, it discusses trends in the catering business.


Critique

The information in the article can be used to get a general idea of which companies are important in the catering business. Most of the very specific information, however, is no longer valuable because it is so dated (seven years old).

| | |
|---|---|
| Title | Energy Requirements in Canadian Restaurants |
| Author(s) | Middleton Associates |
| Publisher/Date/Pages | Middleton Associates / August, 1981 / 61 pages |
| Available from/Price | Engineering and Statistical Research Institute<br>Research Branch, Agriculture Canada<br>Ottawa, Ontario<br>not priced |
| Catalogue & Indexing Numbers | AERO Program File 345Z. 01843-0-CP01 |
| Key Words | Energy/Restaurants |
| Sector Applicability | Office Residential Restaurants Industrial Retail |

Abstract

This reports the results of research into the energy consumption patterns of restaurants. The analysis considers energy demand for each separate restaurant activity; it also assesses total energy consumption per unit of output.

Critique

Substantial baseline data has been acquired by the study, but the report contains three major weaknesses. First, the measurement of energy use per unit of output is insufficiently precise. Second, the issue of space heating is inadequately addressed. Third, the sample size for institutional food service operations is too small to be statistically reliable.

| | |
|---|---|
| Title | Saving Money with Energy Conservation |
| Author(s) | U. S. Department of Energy |
| Publisher/Date/Pages | U. S. Department of Energy / July, 1979 / 26 pages |
| Available from/Price | U. S. Department of Energy<br>Asst. Secretary for Conservation and Solar Applications<br>State Energy Conservation Program Division<br>Washington, D.C., 10585, U.S.A.<br>not available |
| Catalogue & Indexing Numbers | not available |
| Key Words | Audit/Conservation/Energy/Restaurants |
| Sector Applicability | Office Residential Restaurants Industrial Retail |


| | |
|---|---|
| Abstract | This is a manual designed to show a restaurant manager how to effect energy savings through conservation measures. |
| Critique | The manual is useful as a practical source of assistance for the restaurant manager who wants to use less energy. There are many ideas on how to save energy, but nothing in the way of quanititative information regarding the potential of conservation techniques. |

| | |
|---|---|
| Title | Energy Management in Foodservice |
| Author(s) | Unklesbay, Nan, and Unklesbay, Kenneth |
| Publisher/Date/Pages | AVI Publishing Company, Inc. / 1982 / 437 pages |
| Available from/Price | AVI Publishing Company<br>Westport, Conneticut<br>U.S.A.<br>$32.50 (U.S.) |
| Catalogue & Indexing Numbers | ISBN-0-87055-403-4 |
| Key Words | Energy/Foodservice/Energy Consumption/<br>Energy Conservation |
| Sector Applicability | Office Residential **Restaurants** Industrial Retail |


Abstract

The book discusses energy use related to all aspects of the food service industry: storage, preparation and service of food; space heating and air conditioning; lighting. A special section of the book deals with energy conservation.


Critique

The strength of the book is that it provides the restaurant manager, or potential manager, with a good understanding of energy consumption patterns and energy conservation techniques. The book is not intended, however, as a source of statistics on average energy consumption levels in various types of restaurants.

(1) Middleton Associates, unpublished study for the Office of Industrial Research, University of Manitoba, see Appendix B.

(2) Statistics Canada (63-011), Restaurants, Caterers and Taverns Industry Survey, December 1982 (Ottawa: Statistics Canada, 1983).

(3) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), p 62.

(4) Statistics Canada (81-220), Advance Statistics of Education (Ottawa: Statistics Canada, 1982), p 15.

(5) Statistics Canada (83-201), List of Canadian Hospitals and Special Care Facilities, 1982 (Ottawa: Statistics Canada, 1983).

(6) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), pp 55-60.

(7) Canadian Centre for Justice Statistics, Statistics Canada (85-211) Adult Correctional Services in Canada 1981-82 (Ottawa: Statistics Canada, 1983), pp 59, 88.

(8) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), pp 31-63.

(9) Statistics Canada (51-203), Air Carrier Traffic at Canadian Airports, 1980 (Ottawa: Statistics Canada, 1981), p 2.

(10) Statistics Canada (63-002), Department Store Sales and Stocks, December 1982 (Ottawa: Statistics Canada, 1983), pp 6-7.

(11) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), p. 43; Statistics Canada (63-005), Retail Trade, December 1974 (Ottawa: Statistics Canada, 1975).

(12) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), p 31.

(13) Haywood, Bauer and Associates, Inc. (Ed.), Fact File on Canada's Hospitality Business, Fifth Edition (Toronto: Foodservice and Hospitality Magazine, 1982), p 30.

(14) As cited by Middleton Associates based on Ellwood Arthur D. (Ed.); Fact File on Canadian Hospitality Business, Fourth Edition (Toronto: Foodservice and Hospitality Magazine, 1980).

(15) Middleton Associates, Energy Requirements in Canadian Restaurants (Ottawa: Agriculture Canada, 1981).

A. Food Service Receipts in Cafeterias.

B. Energy Conservation in Restaurants: Summary of a Preliminary Study by Middleton Associates.

Table A.1 Estimated Food Service Receipts for All Cafeterias, 1982

| | Schools | Hospitals and Special Care Facilities | Military and Coast Guard Facilities | Prisons | Transportation Facilities | Department Stores | Miscellaneous Retail Establishments | Company Work Places | Government Work Places | Clubs | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thousands of $1982 | | | | | | | | | | |
| Newfoundland | 12 066 | 35 358 | 3 677 | 1 365 | 6 150 | 3 008 | 4 250 | 12 650 | 6 509 | 3 230 | 88 263 |
| Prince Edward Island | 2 259 | 11 017 | 2 077 | 436 | 1 839 | 1 504 | 913 | 2 750 | 1 415 | 500 | 24 710 |
| Nova Scotia | 21 218 | 68 968 | 22 806 | 4 134 | 12 106 | 6 768 | 7 317 | 19 250 | 9 905 | 5 165 | 177 637 |
| New Brunswick | 15 102 | 58 844 | 9 089 | 4 374 | 3 788 | 5 264 | 5 816 | 15 400 | 7 924 | 3 490 | 129 091 |
| Quebec | 136 662 | 450 683 | 22 583 | 28 207 | 34 151 | 44 117 | 56 423 | 144 650 | 74 429 | 47 540 | 1 039 445 |
| Ontario | 208 842 | 665 238 | 46 531 | 37 099 | 50 354 | 89 236 | 82 912 | 194 700 | 100 182 | 70 245 | 1 545 339 |
| Manitoba | 22 071 | 95 283 | 8 198 | 5 840 | 6 673 | 13 034 | 8 554 | 23 100 | 11 886 | 7 710 | 202 349 |
| Saskatchewan | 20 606 | 87 326 | 8 638 | 6 669 | 3 850 | 7 269 | 9 696 | 22 000 | 11 320 | 5 905 | 183 279 |
| Alberta | 46 505 | 189 095 | 14 640 | 14 223 | 19 812 | 36 848 | 24 413 | 51 700 | 26 602 | 16 900 | 440 738 |
| British Columbia | 49 196 | 233 604 | 17 223 | 13 476 | 40 053 | 42 613 | 25 626 | 62 150 | 31 979 | 20 315 | 536 235 |
| Yukon & NWT | 883 | 4 456 | 800 | 1 068 | 410 | 1 003 | 658 | 1 650 | 849 | 300 | 12 077 |
| TOTAL: CANADA | 535 410 | 1 899 872 | 156 262 | 116 891 | 179 186 | 250 664 | 226 578 550 000 | | 283 000 | 181 300 | 4 379 163 |

Note: The values in this table are the sum of the values in Tables A.2 and A.3.

Table A.2 Estimated Food Service Receipts for Uncatered Cafeterias, 1982

| | Schools | Hospitals and Special Care Facilities | Military and Coast Guard Facilities | Prisons | Transportation Facilities | Department Stores | Miscellaneous Retail Establishments | Company Work Places | Government Work Places | Clubs | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thousands of $1982 | | | | | | |
| Newfoundland | 5 685 | 16 477 | 3 484 | 1 365 | 4 852 | 3 008 | 4 250 | 633 | 326 | 2 655 | 42 735 |
| Prince Edward Island | 1 065 | 10 874 | 1 867 | 436 | 1 515 | 1 504 | 913 | 138 | 71 | 375 | 18 758 |
| Nova Scotia | 9 998 | 56 692 | 20 443 | 4 134 | 9 187 | 6 768 | 7 317 | 962 | 496 | 4 290 | 120 287 |
| New Brunswick | 7 166 | 55 961 | 8 057 | 4 374 | 2 734 | 5 264 | 5 816 | 770 | 396 | 2 790 | 93 278 |
| Quebec | 64 394 | 445 725 | 20 116 | 28 207 | 19 150 | 44 117 | 56 423 | 7 232 | 3 721 | 40 965 | 730 050 |
| Ontario | 98 405 | 618 671 | 41 088 | 37 099 | 23 271 | 89 236 | 82 912 | 9 735 | 5 009 | 61 395 | 1 066 821 |
| Manitoba | 10 400 | 95 188 | 7 219 | 5 840 | 2 619 | 13 034 | 8 554 | 1 155 | 594 | 6 660 | 151 263 |
| Saskatchewan | 9 709 | 87 064 | 7 605 | 6 669 | 1 742 | 7 269 | 9 696 | 1 100 | 566 | 4 905 | 136 325 |
| Alberta | 21 913 | 168 673 | 12 890 | 14 223 | 7 324 | 36 848 | 24 413 | 2 585 | 1 330 | 14 550 | 304 749 |
| British Columbia | 23 181 | 232 436 | 15 246 | 13 476 | 25 538 | 42 613 | 25 626 | 3 107 | 1 599 | 17 490 | 400 312 |
| Yukon & NWT | 416 | 3 654 | 747 | 1 068 | 167 | 1 003 | 658 | 83 | 42 | 225 | 8 063 |
| TOTAL: CANADA | 252 282 | 1 791 415 | 138 762 | 116 891 | 98 099 | 250 664 | 226 578 | 27 500 | 14 150 | 156 300 | 3 072 641 |

Table A.3 Estimated Food Service Receipts for Catered Cafeterias, 1982

| | Schools | Hospitals and Special Care Facilities | Military and Coast Guard Facilities | Prisons | Transportation Facilities | Department Stores | Miscellaneous Retail Establishments | Company Work Places | Government Work Places | Clubs | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Thousands of $1982 | | | | | | |
| Newfoundland | 6 381 | 18 881 | 193 | - | 1 298 | - | - | 12 017 | 6 183 | 575 | 45 528 |
| Prince Edward Island | 1 194 | 143 | 210 | - | 324 | - | - | 2 612 | 1 344 | 125 | 5 952 |
| Nova Scotia | 11 220 | 12 276 | 2 363 | - | 2 919 | - | - | 18 288 | 9 409 | 875 | 57 350 |
| New Brunswick | 7 986 | 2 883 | 1 032 | - | 1 054 | - | - | 14 630 | 7 528 | 700 | 35 813 |
| Quebec | 72 268 | 4 958 | 2 467 | - | 15 001 | - | - | 137 418 | 70 708 | 6 575 | 309 395 |
| Ontario | 110 437 | 46 567 | 5 443 | - | 27 083 | - | - | 184 965 | 95 173 | 8 850 | 478 518 |
| Manitoba | 11 671 | 95 | 979 | - | 4 054 | - | - | 21 945 | 11 292 | 1 050 | 51 086 |
| Saskatchewan | 10 897 | 262 | 1 033 | - | 2 108 | - | - | 20 900 | 10 754 | 1 000 | 46 954 |
| Alberta | 24 592 | 20 422 | 1 750 | - | 12 488 | - | - | 49 115 | 25 272 | 2 350 | 135 989 |
| British Columbia | 26 015 | 1 168 | 1 977 | - | 14 515 | - | - | 59 043 | 30 380 | 2 825 | 135 923 |
| Yukon & NWT | 467 | 802 | 53 | - | 243 | - | - | 1 567 | 807 | 75 | 4 014 |
| TOTAL: CANADA | 283 128 | 108 457 | 17 500 | - | 81 087 | - | - | 522 500 | 268 850 | 25 000 | 1 306 522 |

(Summary prepared by the Office of Industrial Research, University of Manitoba)

## Introduction

This appendix summarizes the results of a preliminary, unpublished study conducted by Middleton Associates, Toronto for the Office of Industrial Research, University of Manitoba. The purpose of this research investigation was to establish the potential for energy conservation in Canadian restaurants, to provide data on the regional distribution of this potential and to serve as a guide for policy decisions and for development of the BETT Program. Thus the specific objectives included: a preliminary breakdown of the restaurant energy consumption on a provincial basis; estimates of the potential national savings that could be obtained by the introduction of low investment conservation practices; and suggestions as to energy management strategies and technology transfer options to maximize the energy conserved for different restaurant types.

## Results

Based on Statistics Canada data, it was estimated that 1981 receipts for meals alone in the Canadian restaurant industry totalled nearly 8 billion dollars (Figure B1) and that energy use totalled $53.6 \times 10^6$ gigajoules (Figure B2). These estimates included: licenced restaurants; unlicenced restaurants; drive-in restaurants; take-out food shops; caterers (industrial, social and mobile); refreshment stands; and beverage rooms, bars and night clubs. Information on uncatered

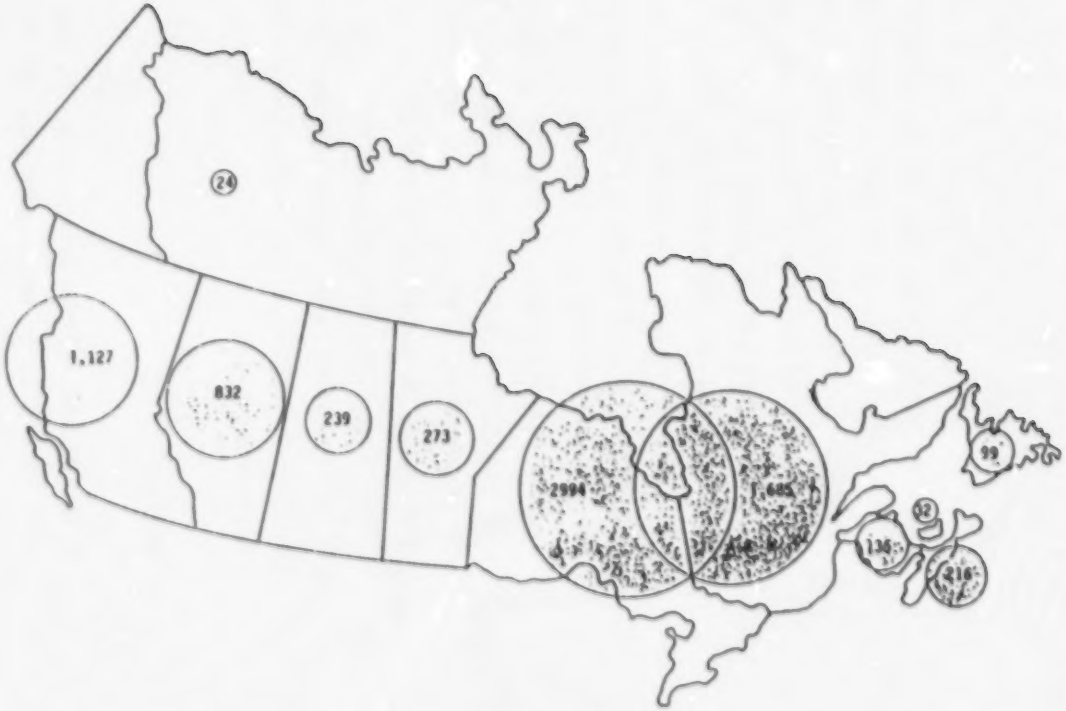



Figure B1 1981 Meal Receipts in Canadian Restaurants (Millions of Dollars)
TOTAL (1981): $7 658 x $10^6$

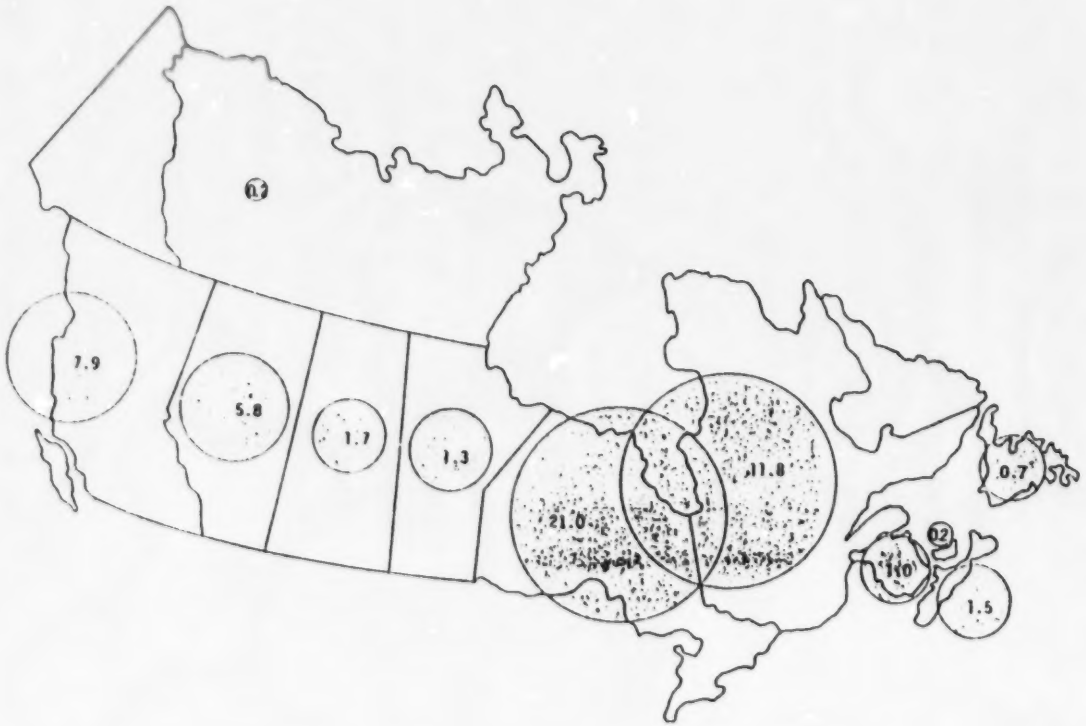



Figure B2 Energy Consumed By Canadian Restaurants (Millions of Gigajoules)
Total (1981): 53.6 x $10^6$GJ @ $5/GJ

institutional cafeterias, non-commercial establishments, and accommodation restaurants was not included in Statistics Canada catalogues, and hence these establishments were excluded from the Middleton estimates. Note that the Fact File on Canadian Hospitality Business, 4th edition(see bibliography) from the Food-service and Hospitality Magazine provided limited information on the accommodation group which indicated that their meal sales represented 14% of the nationwide meal receipts in restaurants.

Other results of the Middleton study showed that the three western provinces experienced a 12% annual growth in per capita expenditure in restaurants from 1975 to 1981, while the five eastern provinces showed an annual growth rate of 9%. Ontario and Quebec consumed 62% of the total energy used for meal preparation whereas the three western provinces used 29%. Some anomalies were noted in the distribution of categories: Ontario accounted for 52% of the take-out food shops while Quebec had only 10% of the take-out shops. On the other hand, Quebec accounted for 55% of the refreshment stands and Ontario only 18%.

## Recommendations

The study recommended that further demographic research be conducted in order to develop a more complete picture of energy usage in the Canadian foodservice and restaurant industry. Although uncatered cafeterias had not been included in the study, they were believed to represent a very significant portion of the industry. Further investigation of the accommodation subsector (eg, restaurants in hotels, motels) also was suggested.

## Conclusion

It was concluded by the Middleton Associates evaluation of energy usage in Canadian restaurants that implementation of a national technology transfer program for restaurant energy conservation was justified within the objectives and scope of the BETT Program.

POOR

QUALITY

ORIGINAL